

**U.S. ENVIRONMENTAL PROTECTION AGENCY**

**STANDARD OPERATING PRACTICES  
FOR  
ASBESTOS SAFETY  
AND HEALTH PROTECTION PRACTICES**

**Office of Administration and Resources Management  
Safety, Health, and Environmental Management Division**

**Washington, D.C.**

**July, 1994**

## **Background**

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EPA's national safety, health, and environmental management program has as its focus the development, implementation, and ongoing management of consistent asbestos-containing building materials (ACBM) Operations and Maintenance (O&M) Plans for each facility where ACBM are known or assumed to be present.

EPA's policy and program (hereinafter the "Program") have been developed with the goal of minimizing ambient asbestos fiber levels with economic, social, technical, and environmental factors being taken into account.

This SOP document, developed by EPA's Safety, Health, and Environmental Management Division (SHEMD), will aid Asbestos Program Managers (APM) in the development, implementation, and administration of asbestos programs for the management of asbestos risks on a facility-specific basis.

This document has been developed to be used in conjunction with EPA's July 1990 Guidance Document entitled Management Asbestos In-Place -A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials (EPA publication number 20t-2003), also known as the "Green Book". This document assumes that the users have a copy of the Green Book and are familiar with it's content. It also assumes that the users have copies of applicable federal, state and local regulations and are familiar with their requirements.

# **Editing the Model Standard Operating Practices (SOP) Manual of Asbestos Safety and Health Protection Practices**

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The designated APM is responsible for the editing of this document to meet the needs of the facility in which it is intended. This document is not intended to be used in an unedited format. This document is designed to assist the APM in creating an O&M manual for a specific facility where appropriate. Introductory green sheets (like this one) may be included at the beginning of each section to help explain particular aspects of each section. These "green sheet" introductions are not intended to be a part of the facility's final document, but are tools to assist in the process of helping the APM in editing this document. Along with the introductory sections, notes may also be found throughout the document referencing pertinent information that the editor/APM will need to determine. These notes are recognized in the following formats:

[Information to be filled in, completed, or deleted by the writer]

or

**Editing Information**  
(to be read, action taken then deleted from final printing)

If needed, appendices may be added to the document to reference additional materials and information.

Also enclosed is a 3½" high density diskette that contains the unedited Model Standard Operating Practices documentation files. The bulk of the document is saved as SOP.518 in WordPerfect 5.1 format. The additional Correll Draw 3.0 files that will need to be edited are: (1) EPAO.CDR; (2) EPAL.CDR; (3) GSAO.CDR; (4) GSAL.CDR; and (5) IAG.CDR.

Revise page numbering to reflect additions and deletions.

## TABLE OF CONTENTS

1.	Introduction . . . . .	1
1.1	Introduction . . . . .	1
1.2	Purpose . . . . .	1
2.	Background . . . . .	4
2.1	Asbestos Diseases . . . . .	4
2.2	Asbestos Minerals . . . . .	4
3.	Locations and Presence . . . . .	5
3.1	Locations of ACBM in Facility . . . . .	5
3.2	Presence of ACBM . . . . .	6
4.	Program Organization and Responsibilities . . . . .	7
4.1	Organization of Program . . . . .	7
4.2	Asbestos Program Manager . . . . .	17
4.3	Asbestos Program Coordinator . . . . .	18
4.4	Asbestos Inspector . . . . .	18
4.5	Asbestos Worker . . . . .	18
4.6	Qualifications . . . . .	19
5.	Training Requirements . . . . .	20
5.1	APM Training Requirements . . . . .	20
5.2	APC Training Requirements . . . . .	24
5.3	Asbestos Worker Training Requirements . . . . .	24
5.4	Asbestos Inspector Training Requirements . . . . .	26
5.5	Course Examinations . . . . .	29
5.6	Air Monitoring Training Requirements . . . . .	30
6.	Inspecting Buildings for Asbestos-Containing Materials . . . . .	31

## TABLE OF CONTENTS (CONTINUED)

7.	Sampling and Analytical Methods Pertaining to Asbestos-Containing Materials .....	32
7.1	General .....	32
7.2	Sampling Methods .....	32
7.3	Analytical Methods .....	34
7.4	Sampling Strategies and Procedures for an Abatement Project .....	35
8.	Personal Protective Equipment and Decontamination Procedures	39
8.1	Respirators .....	39
8.2	Protective Clothing .....	40
8.3	Decontamination Procedures .....	40
9.	O&M Plan Purpose and Scope .....	41
9.1	O&M Plan Purpose .....	41
9.2	Levels of O&M Projects .....	41
9.3	Work Scheduling .....	41
9.4	Appointing the APM and APC .....	42
9.5	Assigning Workers .....	43
9.6	Elements of an O&M Plan .....	43
	9.6.1 Building Inspection and Assessment .....	43
	9.6.2 Asbestos Safety Training .....	44
	9.6.3 Asbestos Exposure Monitoring .....	45
	9.6.4 Medical Surveillance .....	49
	9.6.5 Notification Program .....	49
	9.6.6 Surveillance and Reinspection .....	51
	9.6.7 Control System .....	51
10.	Recordkeeping .....	55
11.	Quality Assurance and Quality Control (QA/QC) .....	56
12.	References .....	57
13.	Definitions .....	58

## TABLE OF CONTENTS (CONTINUED)

### 14. Appendices ..... 66

#### 14.1 Appendix A: Standard Forms

These standard forms are provided for use and reference. They may be edited partially or in full for this specific facility and incorporated into the document. These forms may be broken out into individual appendices corresponding to relevant information. This is detailed in the editor's notes throughout the document.

Inspection Summary Sheet  
Bulk Sample Data Form  
Surfacing Assessment Form  
TSI Assessment Form  
Miscellaneous Assessment Form  
Master List of Training Information  
Verification of Employee Training  
Sample Information Letter to Tenants/Occupants  
Occupant Notification Form  
Basic and Initial Medical Questionnaire (OSHA)  
Periodic Medical Questionnaire (OSHA)  
Reinspection Form  
Work Control Application Form  
O&M Activity Form  
Records Request Form  
Air Sample Form  
Fiber Release Episode Report  
Waste Tracking Form and Waste Disposal Record  
Initial/Periodic Cleaning Form  
Contractor's Acknowledgment Form  
Clearance Inspection Checklist  
NESHAP Notification of Demolition and Renovation Form  
NESHAP Waste Shipment Record

### 15. Abbreviations and Acronyms ..... 68



# Section 1 Introduction

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## 1.1 Introduction

The Office of Administration and Resources Management, Office of Administration, Safety, Health, and Environmental Management Division (SHEMD) has established a program for the Management of Asbestos-Containing Building Materials (ACBM) at EPA occupied or controlled facilities. The underlying policy for this Program establishes the Agency's position concerning protection of Agency workers from the adverse health effects of exposure to asbestos. The primary goal of this Program is the minimization of ambient asbestos fiber levels, with economic, technical and environmental factors being taken into account. The Program defines the managerial and technical framework system through which this goal is achieved.

These Standard Operating Practices have been developed for Asbestos-Containing Building Materials (ACBM) that are to be managed in place at:

Name of Facility
Address
City, State Zip

## 1.2 Purpose

This document, the "Asbestos Safety and Health Protection Practices", establishes Standard Operating Practices (SOPs) to carry out the directives of the EPA's Program for the Management of Asbestos-Containing Building Materials at EPA Facilities. This document is an integral part of the Program; it establishes guidance for the general approaches and work practices which are implemented at the operations level to effectuate the various requirements of the Program in laboratory, field, and other settings. As such, it defines requirements and designates protocols and procedures that will ensure personnel safety where asbestos-containing building materials are used, or where surface contamination may exist; i.e., in any area that a worker must enter in the performance of duty and that presents a potential for exposure.

This document contains a set of administrative procedures and work practices to be utilized for the in-place management and control of ACBM during routine cleaning, maintenance, renovation and other operational activities at all EPA occupied or controlled facilities. It has been developed to work with EPA's July 1990 guidance document entitled "Managing Asbestos in Place - A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials" (EPA publication number 20T-2003), also known as the "Green Book". These SOPs assume that the user(s) have a copy of the Green Book and are familiar with its content. It is also assumed that the users have copies of applicable federal, state and local regulations and are familiar with their requirements.



**Federal regulations may be added as an appendix to this document for quick reference.**

The objectives of the SOPs are to:

1. maintain ACBM in good condition and minimize the release of asbestos fibers by controlling activities which may disturb ACBM;
2. minimize airborne asbestos exposure for building occupants, maintenance/custodial workers and the public;
3. establish procedures for controlling and containing ACBM which have been disturbed;
4. establish administrative procedures and work practices to achieve the objectives for the program; and
5. monitor ACBM through periodic visual surveillance.

Standard Methods (SMs), maintained under the SOPs in separate documents, provide detailed guidance for specific procedures and techniques which are employed in the conduct of certain work activities.

The Program, and its associated SOPs and SMs, incorporate nationally accepted and consistent means and methods for identifying, assessing, recording, controlling, and communicating the potential risks and dangers associated with occupational exposure to ACBM.

An important aspect of this document, and the accompanying Standard Methods (SMs) document, is that it is designed to work for the different ownership and lease arrangements commonly used for EPA facilities. The arrangements addressed by the manual are:

- EPA owned and managed facility (EPAO);
- EPA leased facility (EPAL);
- EPA facility owned and managed by GSA (GSAO);
- EPA facility leased by GSA (GSAL); including EPA Occupied/EPA Delegated; and
- EPA facility accessed through an Inter-Agency Agreement (IAG).

This document outlines how the SOPs are organized and shall be handled under each lease/own arrangement.

A successful asbestos O&M program requires the cooperation and participation of all occupants of the facility. Workers performing asbestos O&M work must follow the SOPs included in this document to achieve the objectives listed above.

The Program and SOPs apply to any new facilities to be occupied or controlled by the EPA and shall be made a part of any future space solicitations or lease agreements.

The Documentation Package for Asbestos Operations and Maintenance Programs in U.S. General Services Administration (GSA) Facilities (dated September 24, 1990), is referenced in this document and the SMs document, and is utilized to provide consistency in documentation. Applicable GSA forms are included in the appendices of the document.

This document and the SMs document utilize asbestos-related work practices developed by the National Institute of Building Sciences (NIBS) in the NIBS document entitled "Operations and Maintenance Work Practices Manual".



## **Section 2      Background**

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### **2.1      Asbestos Diseases**

Asbestos fibers can cause serious health problems. If inhaled, they can cause diseases which disrupt the normal functioning of the lungs. Three specific diseases - asbestosis (a fibrous scarring of the lungs), lung cancer, and mesothelioma (a cancer of the lining of the chest and of the abdominal cavity) - have been linked to asbestos exposure. These diseases do not develop immediately after inhalation of asbestos fibers; it may be 20 years or more before symptoms appear.

Whenever the risk posed by asbestos is discussed, it must be kept in mind that asbestos fibers can be found nearly everywhere in our environment (usually at very low levels). There is, at this time, insufficient information concerning health effects resulting from low-level asbestos exposure, either from exposures in buildings or from our environment. This makes it difficult to accurately assess the magnitude of cancer risk for building occupants, tenants, and building maintenance and custodial workers. Although in general the risk is likely to be negligible for occupants, health concerns remain, particularly for the building's custodial and maintenance workers. Their jobs are likely to bring them into close proximity to ACM, and may sometimes require them to disturb the ACM in the performance of maintenance activities. For these workers in particular, a complete and effective management program can greatly reduce asbestos exposure. This kind of management program can also minimize asbestos exposures for other building occupants as well.

### **2.2      Asbestos Minerals**

The term "asbestos" describes six naturally occurring fibrous minerals found in certain types of rock formations. Of that general group, the minerals chrysotile, amosite, and crocidolite have been most commonly used in building products. When mined and processed, asbestos is typically separated into very thin fibers. When these fibers are present in the air, they are normally invisible to the naked eye. Asbestos fibers are commonly mixed during processing with a material which binds them together so that they can be used in many different products. Because these fibers are so small and light, they may remain in the air for many hours if they are released from ACM in a building. When fibers are released into the air they may be inhaled by people in the building.



## **Section 3      Locations and Presence**

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### **3.1      Locations of ACBM in a Facility**

In February 1988, the EPA released a report titled "EPA Study of Asbestos-Containing Materials in Public Buildings: A Report to Congress". EPA found that "friable" (easily crumbled) ACBM can be found in an estimated 700,000 public and commercial buildings. About 500,000 of those buildings are believed to contain at least some damaged asbestos, and some areas of significantly damaged ACBM can be found in over half of them.

According to the EPA study, significantly damaged ACBM are found primarily in building areas not generally accessible to the public, such as boiler and machinery rooms, where asbestos exposures generally would be limited to service and maintenance workers.

Friable ACBM, if present in air plenums of the building ventilation system, can lead to distribution of the material throughout the building, thereby possibly exposing building occupants. ACBM can also be found in other building locations.

Asbestos in buildings has been commonly used for thermal insulation, fireproofing, and in various building materials, such as floor coverings, ceiling tile, cement pipe and sheeting, granular and corrugated paper pipe wrap, and acoustical and decorative treatment for ceilings and walls. Typically, it is found in pipe and boiler insulation and in spray-applied uses such as fireproofing or sound-deadening applications.

The amount of asbestos in these products varies widely (from approximately greater than 1 percent to (nearly) 100 percent). The precise amount of asbestos in a product cannot always be accurately determined from labels or by asking the manufacturer. Nor can positive identification of asbestos be ascertained merely by visual examination. Instead, a qualified laboratory must analyze representative samples of the suspect material.

A building survey must be, or have been, conducted and bulk samples of suspect ACBM obtained and analyzed to determine whether or not materials actually contain asbestos. Suspect materials shall be assumed to contain asbestos unless bulk sampling indicates otherwise.

The general location of ACBM in [Name of Facility] has been determined by a building survey. The survey information is presented in the following report(s):

Give names of reports, surveys, etc.

If needed, an appendix may be added to this document to include survey results. Remember to include a reference here as well as at the Table of Contents.

Available survey data must be reviewed when maintenance, repair, renovation or demolition work is anticipated in any of the facilities to determine if ACBM could be disturbed.

The survey information for this facility must be reviewed before work on suspect ACBM are performed. If adequate sampling has not been performed where the work will occur, additional samples shall be obtained and analyzed, or the suspect materials shall be assumed to be ACBM and treated accordingly.

### **3.2 Presence of ACBM**

The mere presence of asbestos in a building does not mean that the health of building occupants or workers is endangered. Intact and undisturbed asbestos-containing materials do not pose a health risk. ACBM which are in good condition, and are not damaged or disturbed, are not likely to release asbestos fibers into the air. When ACBM are properly managed, release of asbestos fibers into the air is prevented or minimized, and the risk of asbestos-related disease can be reduced to a negligible level.

However, asbestos materials can become hazardous when, due to damage, disturbance, or deterioration over time, they release fibers into building air. Under these conditions, when ACBM are damaged or disturbed-for example, by maintenance repairs conducted without proper controls - elevated airborne asbestos concentrations can create a potential hazard for workers and other building occupants.

ACBM are classified into the following categories by EPA. These categories have been used in recent EPA guidance documents on ACBM. The SMs are divided into these same three categories.

1. **Surfacing Material:** Examples include ACBM sprayed or troweled onto surfaces, such as decorative plaster on ceilings or acoustical ACBM on the underside of concrete slabs or decking, or fireproofing materials on structural members.
2. **Thermal System Insulation (TSI) Material:** Examples include ACBM applied to pipes, boilers, tanks, and ducts to prevent heat loss or gain, or condensation.
3. **Miscellaneous Material:** Examples include asbestos-containing ceiling or floor tiles, textiles, and other components such as asbestos-cement panels, asbestos siding and roofing materials.





## **Section 4    Program Organization and Responsibilities**

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### **4.1    Organization of Program**

The chart presented on the next page is a summary of the responsibilities for designated personnel. The person that implements and oversees the entire asbestos management program at the facility is the Asbestos Program Manager (APM). If this person is not an EPA worker, an EPA Asbestos Program Coordinator (APC) shall be designated by EPA to work with the APM. All work performed as a part of this program shall be subject to approval by the EPA APM or APC.

*The entity that manages the building provides the APM.*

An important aspect of this program is that it is designed to work for the different ownership and lease arrangements commonly used for EPA facilities.

1.    EPA owned and managed facility (EPAO).
2.    EPA leased facility (EPAL).
3.    EPA facility owned and managed by GSA (GSAO).
4.    EPA facility leased by GSA (GSAL).
  - 4a.    EPA facility leased by GSA (GSAL)
  - 4b.    EPA occupied/EPA delegated
5.    EPA facility accessed through an Inter-Agency Agreement (IAG).

Edit the following chart for the applicable arrangement.

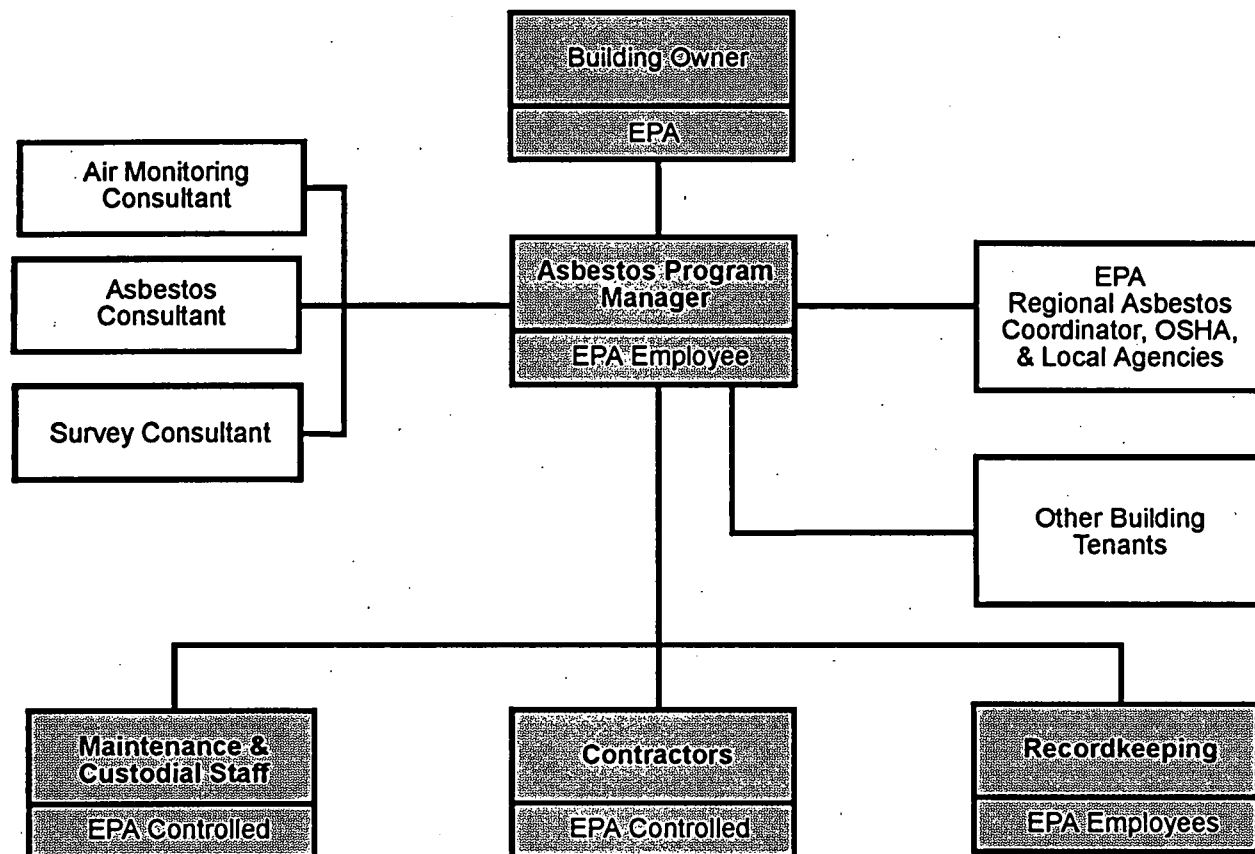
**Lease/Own Arrangement(s) for [Name of Facility]**

	EPAO	EPAL	GSAO	GSAL	IAG
Asbestos Program Manager	EPA Employee	Employee of Owner	GSA Employee	Employee of Owner	Employee of Agency
Asbestos Program Coordinator	None	EPA Employee	EPA Employee	EPA Employee	EPA Employee
O&M Workers	EPA Employees/ Contractors	Owner's Employees/ Contractors	GSA Employees/ Contractors	Owner's Employees/ Contractors	Owner's Employees/ Contractor
Organizational Chart	Figure 1	Figure 2	Figure 3	Figure 4/4a	Figure 5

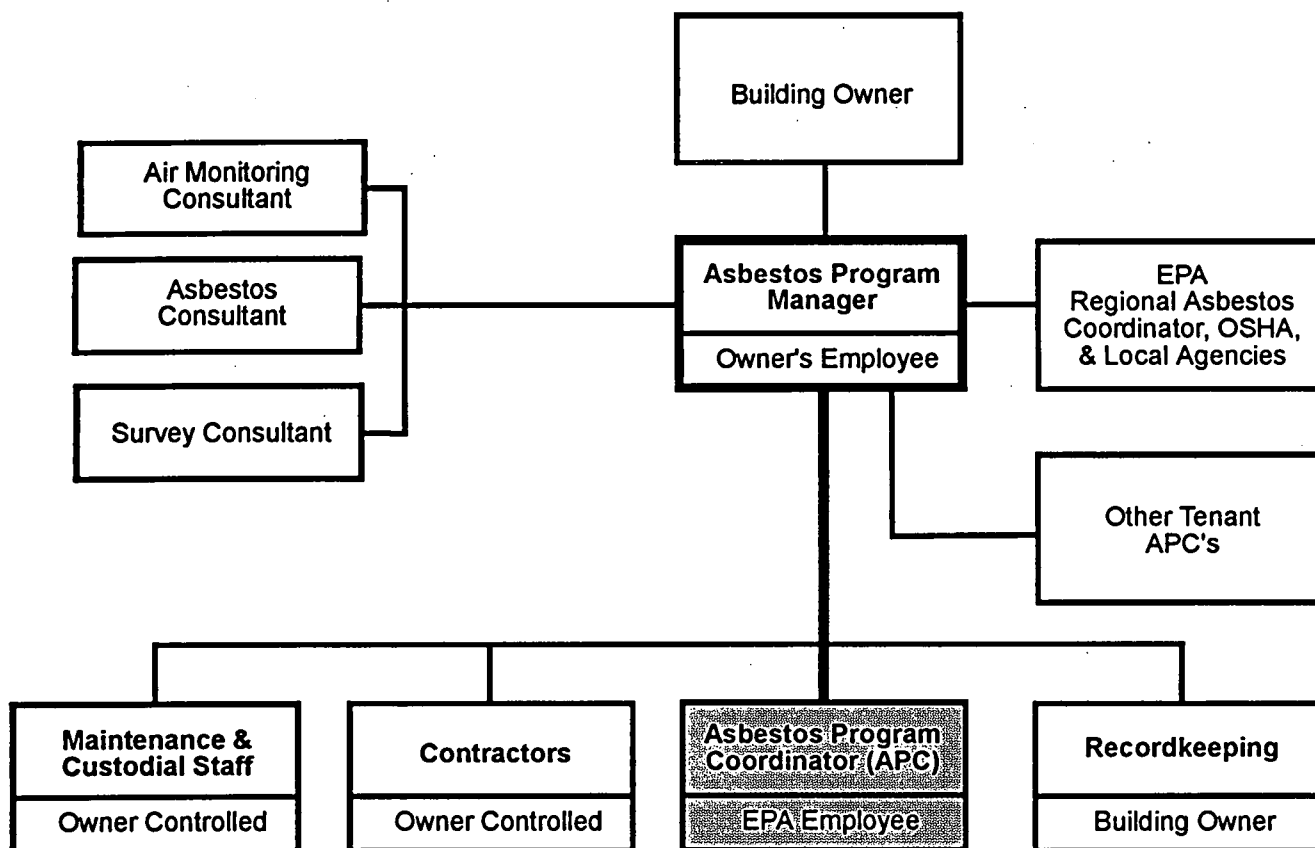
Select one of the following flowcharts that corresponds with the lease/own arrangement for this facility. The chart should then be placed after the Lease/Own Arrangement(s) chart in the revised document. These charts are produced on Correll Draw Version 3.0 and are saved on the SOP diskette. The chart files are named according to their abbreviations found on each chart. The following are the names of the Correll Draw files to choose from:

EPAO.CDR  
EPAL.CDR  
GSAO.CDR  
GSAL.CDR  
IAG.CDR

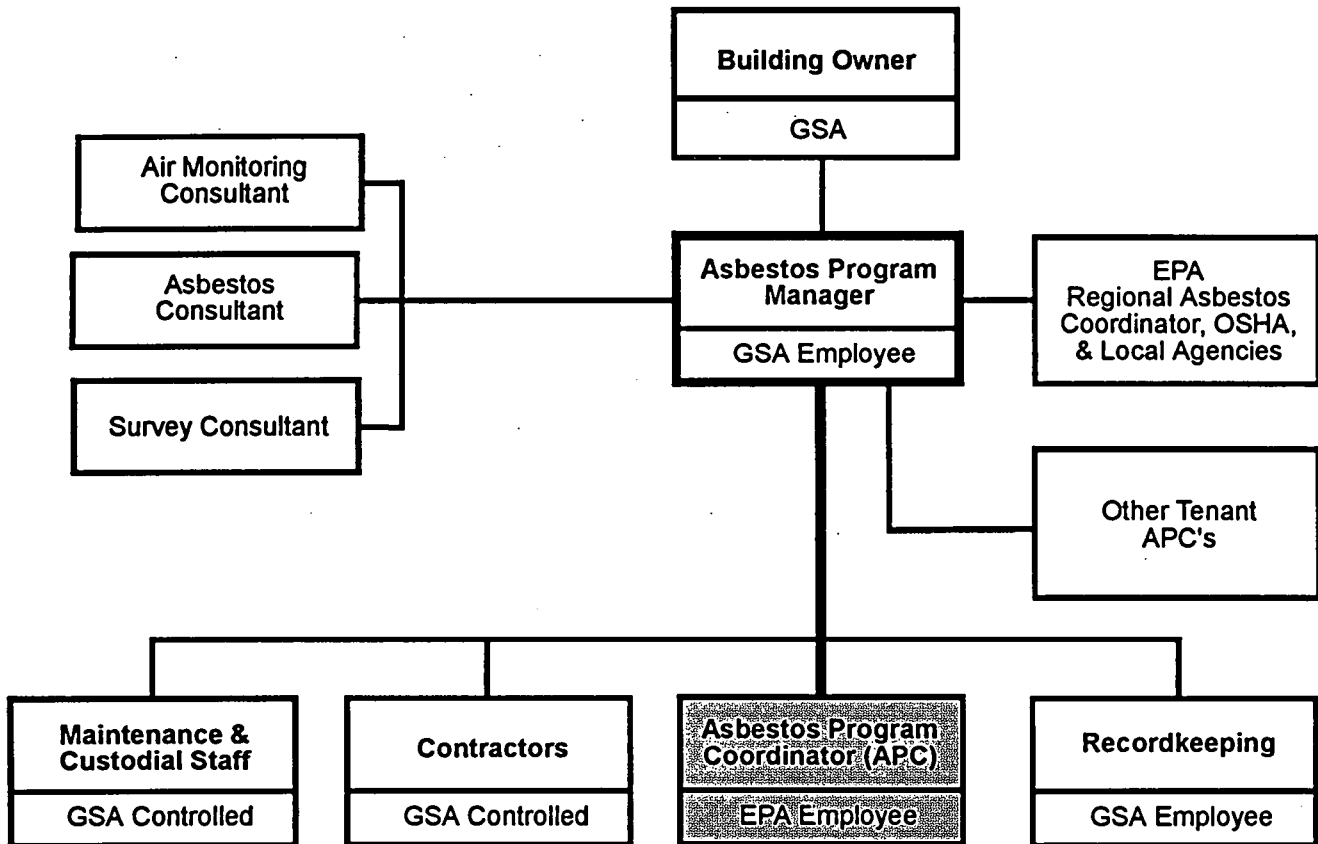
## EPA OWNED (EPAO) BUILDINGS O&M PROGRAM ORGANIZATIONAL CHART



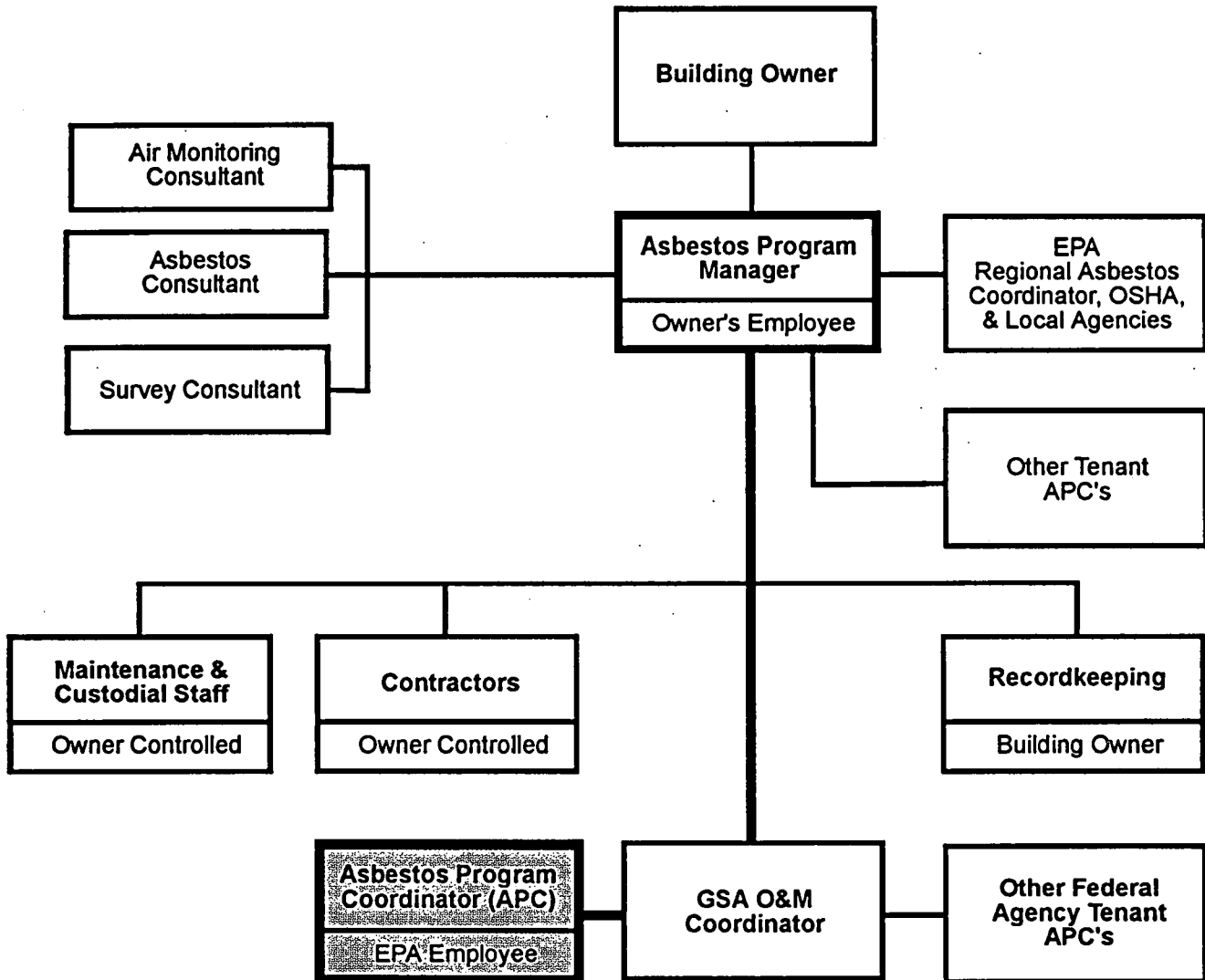
# EPA LEASED (EPAL) BUILDINGS O&M PROGRAM ORGANIZATIONAL CHART



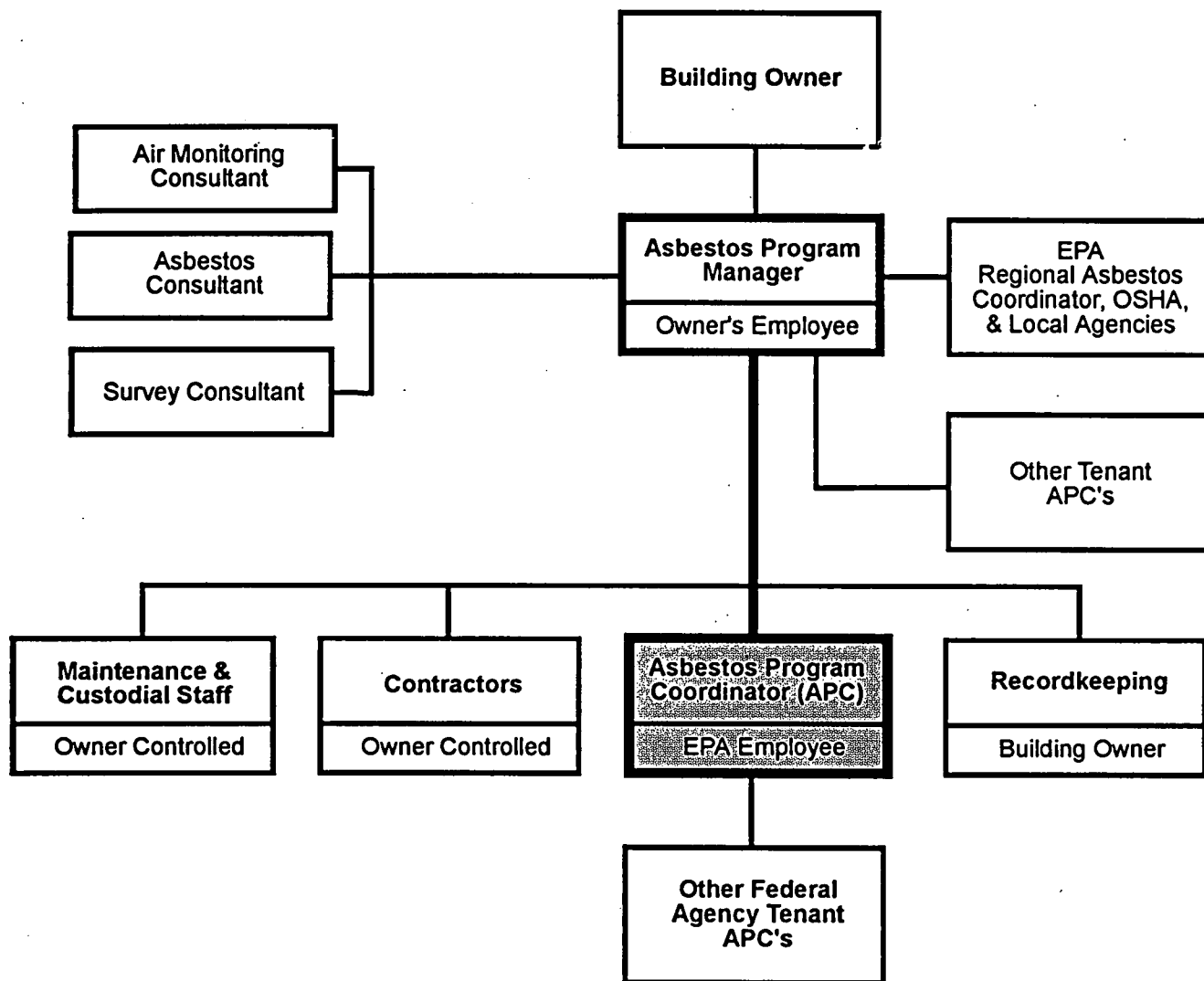
# GSA OWNED (GSAO) BUILDINGS O&M PROGRAM ORGANIZATIONAL CHART



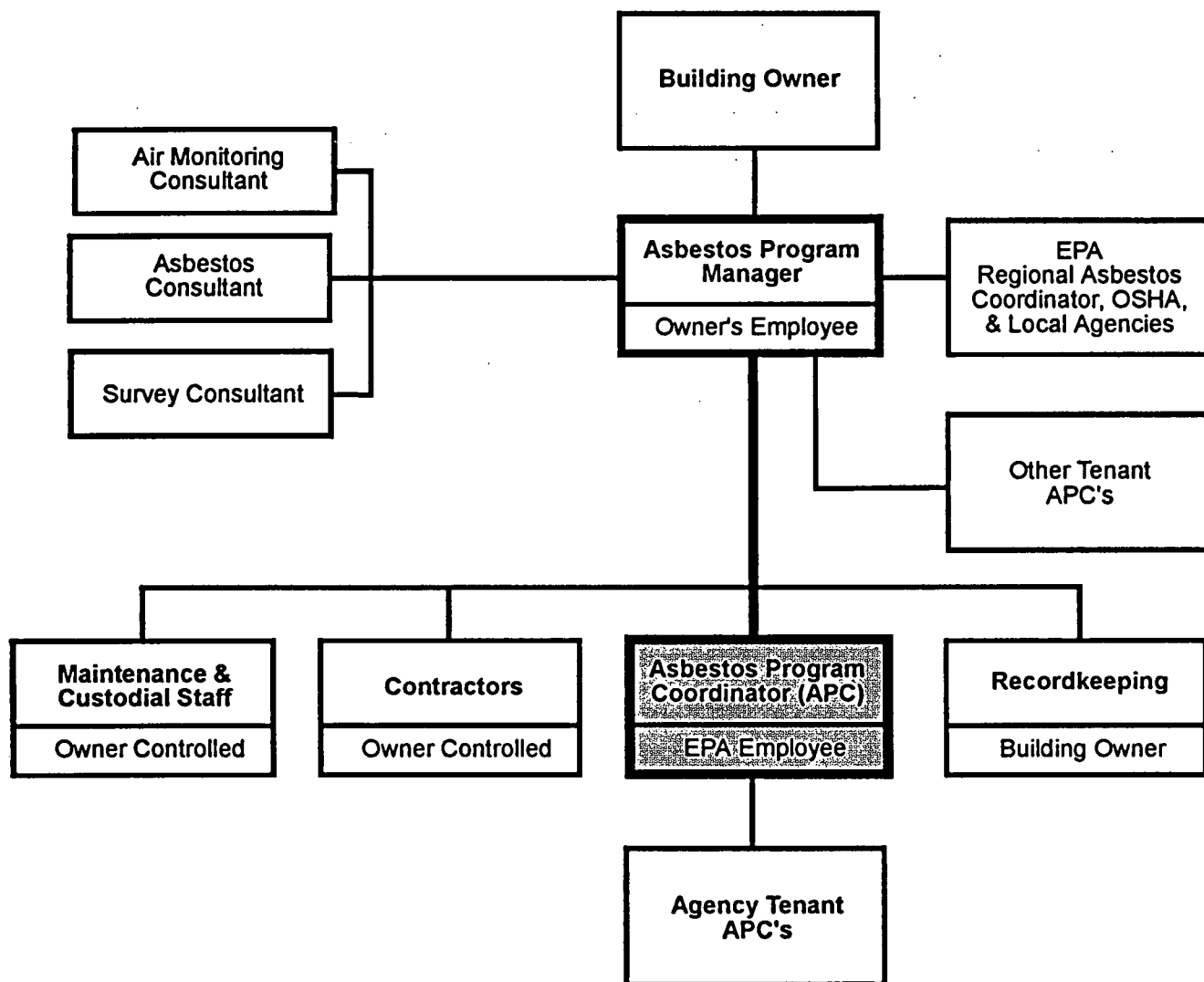
# GSA LEASED (GSAL) BUILDINGS O&M PROGRAM ORGANIZATIONAL CHART



# GSA LEASED (GSAL) BUILDINGS \*EPA OCCUPIED EPA DELEGATED O&M PROGRAM ORGANIZATIONAL CHART



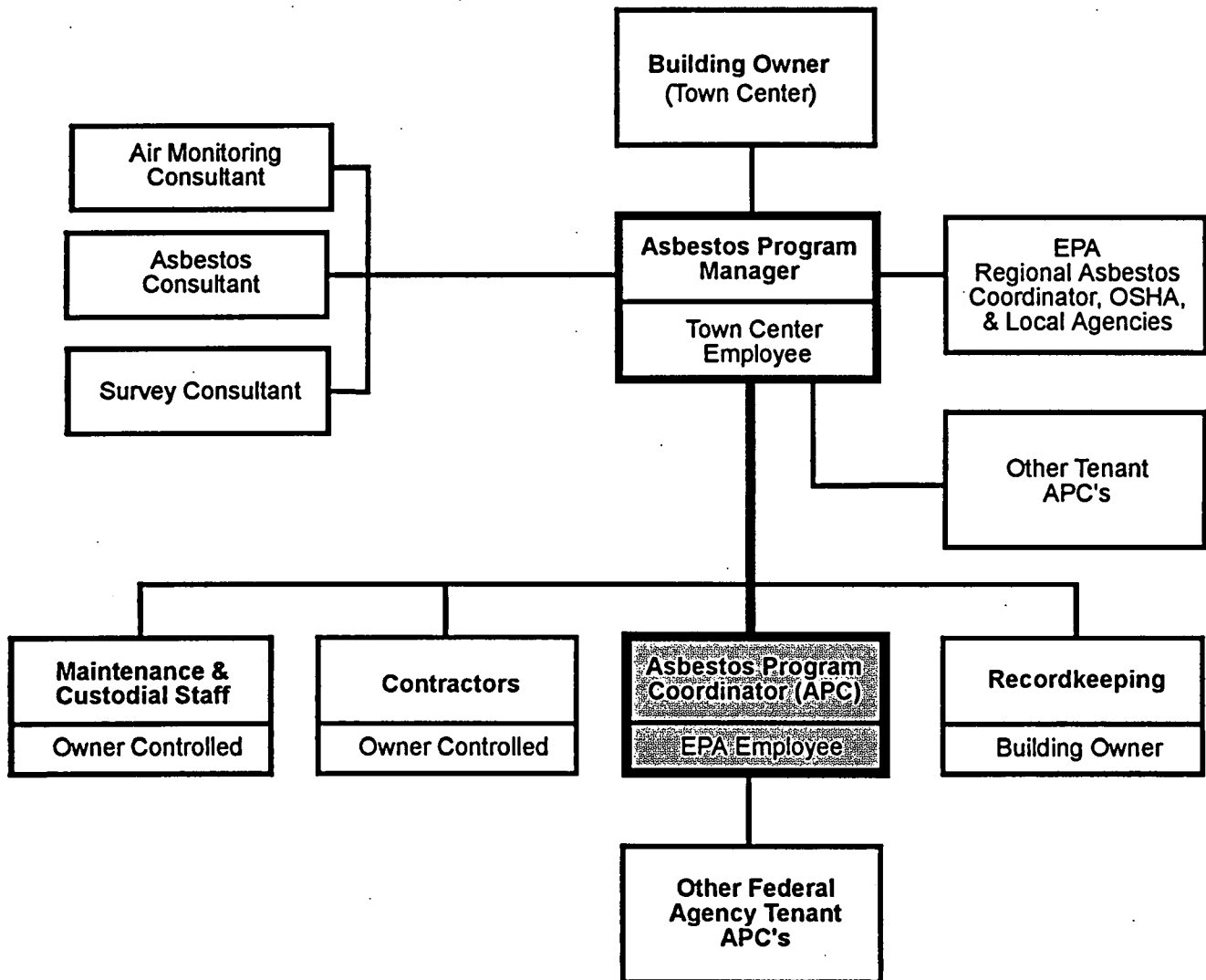
# INTER-AGENCY AGREEMENT (IAG) BUILDINGS O&M PROGRAM ORGANIZATIONAL CHART





**Case Study  
Waterside Mall**

**GSA LEASED (GSAL) BUILDINGS  
EPA OCCUPIED EPA DELEGATED  
O&M PROGRAM ORGANIZATIONAL CHART**



The following chart summarizes the assigned responsibilities for SOPs. Responsibility for various elements depends upon the type of lease/own arrangement for a given facility.

### Lease/Own Arrangement Tasks for [Name of Facility]

Delete the columns of this chart that are inapplicable to this facility's lease/own arrangement.

TASK *	EPAO	EPAL	GSAO	GSAL	IAG
<b>Notifications:</b> Initial Asbestos O&M Work <i>(APM 3 &amp; 4)</i>	EPA EPA	EPA Owner	EPA GSA	EPA GSA	EPA Owner
Periodic Surveillance <i>(AHERA)</i>	EPA	Owner	GSA	Owner	Owner
Reinspections <i>(Chpt. 1 &amp; 3, AHERA)</i>	EPA	Owner	GSA	Owner	Owner
Engineering Controls/Worker Protection <i>(Chpt. 3)</i>	EPA	Owner	GSA	Owner	Owner
<b>Work Permits:</b> Prepare Review <i>(Chpt. 2, Append.)</i>	EPA EPA	Owner EPA	GSA EPA	Owner EPA	Owner EPA
Work Practices <i>(Chpt. 4-6)</i>	EPA	Owner	GSA	Owner	Owner
Recordkeeping <i>(APM 7)</i>	EPA	Owner	GSA	Owner	Owner
Cleaning Work <i>(W12-14)</i>	EPA	Owner	GSA	Owner	Owner
Fiber Releases <i>(APM 10, AHERA)</i>	EPA	EPA	EPA	EPA	EPA
Air Monitoring <i>(APM6,W15)</i>	EPA	Owner	GSA	Owner	Owner
Waste Disposal <i>(W16)</i>	EPA	Owner	GSA	Owner	Owner
Training/Fit Tests <i>(APM5,W5)</i>	EPA	Owner	GSA	Owner	Owner
Bulk Sampling <i>(AHERA)</i>	EPA	Owner	GSA	Owner	Owner
Update Data <i>(Chpt. 2)</i>	EPA	Owner	GSA	Owner	Owner

(\*: Items in "( )" denote location of topic - in the NIBS Guidance Document or the AHERA regulations).

The APM shall designate personnel responsible for each part of the SOPs listed. Under the EPAO arrangement, the APM shall maintain a current list of the designated personnel. Under the EPAL, GSAO, GSAL and IAG arrangements, a current list of these personnel shall be provided to the EPA APC at least every six months.

If needed, an appendix may be added to this document to include the current personnel listing for any of these arrangements. Remember to include an appendix reference here as well as in the Table of Contents.

## 4.2 Asbestos Program Manager (APM)

Asbestos Program Managers (APM) are responsible for (1) maintaining generic policies, plans and procedures current within the region, (2) providing technical support in the development of Building O&M plans, (3) serving as a technical resource during site specific response actions, and (4) conducting investigations of occurrences, accidents, and major or minor fiber release episodes.

At the regional level, the Program shall be jointly administered with the Safety, Health and Environmental Management Program (SHEMP) Manager. A good working relationship is essential for an effective program.

The position of APM is frequently held by the building engineer, superintendent, facilities manager, or safety and health manager. Regardless of who holds this position, the APM must be properly qualified, through training and experience, and be *actively involved* in all asbestos-control activities. EPA accreditation under the Asbestos Hazard Emergency Response Act (AHERA) Contractor/Supervisor and Designer are the required training courses.

If the person selected is not adequately prepared, he or she shall receive the training necessary to develop and manage an asbestos control program prior to beginning the job.

In general, the APM shall have the authority to oversee all asbestos-related activities in the building, including inspections and surveys, O&M activities, and other abatement response actions. The APM will ensure that worker training takes place. In addition, the APM will oversee the custodial and maintenance staffs, contractors, and outside service vendors with regard to all asbestos-related activities.

The Asbestos Program Manager (APM) for this facility is:

Name	[ ]	
Title	[ ]	
Company	[ ]	
Address	[ ]	
	[ ]	
Telephone	[ ]	Ext. [ ]
Alternate telephone	[ ]	Ext. [ ]
After hours telephone	[ ]	Ext. [ ]
Emergency telephone	[ ]	Ext. [ ]

**If the lease arrangement requires an APC, please incorporate this section; if not, delete.**

#### **4.3 Asbestos Program Coordinator (APC)**

In those lease arrangements where EPA is a tenant, either directly with the building owner or through a GSA lease, EPA shall appoint an EPA worker to the position of Asbestos Program Coordinator (APC). As EPA's representative, the APC shall coordinate all tenant related activities that may disturb known, assumed, or suspected ACBM.

The position of APC shall be held by a EPA SHEMD representative, or EPA's facility/tenant representative who controls or monitors renovation activities that might disturb ACBM within EPA's lease premises. The APC must be properly qualified, through training and experience, and be *actively involved* in all asbestos-control activities of the entire building. EPA accreditation under AHERA as a Contractor/Supervisor is the required training course.

In general, the APC shall have the authority to oversee all asbestos-related activities within the EPA occupied or controlled portions of the building.

If the lease arrangement for this EPA occupied or controlled facility requires the appointment of an Asbestos Program Coordinator (APC), EPA's point of contact in [Name of Facility] is identified as follows:

[Name of Contact]  
[Title]  
[Division]  
[Organization]  
[Telephone number]

[Name of Contact] will be the point of contact for the APM to the EPA concerning O&M activities in EPA leased spaces within [Name of Facility].

#### **4.4 Asbestos Inspector**

Those persons who engage in, or expect to engage in, work assignments to visually inspect or collect bulk samples from a building to determine the presence of asbestos, shall be properly qualified through training and experience. EPA accreditation under AHERA as an Inspector is the required training course.

An Inspector may be an EPA worker or a worker from another federal agency (i.e. GSA), or may be a representative of the building owner or an independent contractor.

#### **4.5 Asbestos Worker**

Building owner workers/contractors working on O&M activities in this building are the following: those persons who engage in, or expect to engage in, routine or emergency work assignments where the potential exists for disturbing ACBM. They shall be properly

qualified, through training and experience. EPA accreditation under AHERA as a Worker is the required training course.

It is EPA policy that all asbestos work be performed by accredited building owner workers and/or independent contractors.

Accredited building owner workers or contractors working on O&M activities in this building are the following:

Company	[REDACTED]
Address	[REDACTED]
	[REDACTED]
Telephone	[REDACTED] Ext. [REDACTED]
Names of Workers	[REDACTED]
	[REDACTED]
	[REDACTED]

#### 4.6 Qualifications

To be designated an APM, APC, Inspector and/or Worker, each EPA worker or representative must satisfy the following minimum requirements pertaining to training and experience.

1. Training - specific training in asbestos abatement. At a minimum, each individual must have successfully completed the respective course(s) designated and approved by SHEMD. An annual refresher course is required to remain current with respect to regulations and technology.
2. Experience - one year experience with asbestos-containing building materials. Additional education specific to asbestos or industrial hygiene practice may be applied to satisfy, in part, up to fifty percent of the experience requirement.



## Section 5    Training Requirements

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Adequate asbestos safety training of all EPA workers and representatives entering areas of potential asbestos exposure addressed by Chapter 16 of the Safety, Health and Environmental Management Manual is a Program principle. Included below are the training requirements for the APM, APC, Inspector(s) and Worker(s) at each EPA occupied or controlled facility.

The asbestos training program shall be designed for workers with little or no prior knowledge of asbestos effects and asbestos safety principles. Annual refresher courses are required.

### 5.1    APM Training Requirements

The APM shall attend the following two courses to fulfill the asbestos safety and management training described above:

1.    Contractor/Supervisors: a 5-day training course that includes at least 14 hours of hands-on training, individual respirator fit testing, course review, and a written examination. Hands-on training must permit supervisors to have actual experience performing tasks associated with asbestos abatement, including O&M activities.

Suggested topics include, but are not limited to:

- (a)    *The physical characteristics of asbestos and asbestos-containing materials.* Identification of asbestos, aerodynamic characteristics, typical uses, physical appearance, a review of hazard assessment considerations, and a summary of abatement control options.
- (b)    *Potential health effects related to asbestos exposure.* The nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; synergism between cigarette smoking and asbestos exposure; and latency period for diseases.
- (c)    *Employee personal protective equipment.* Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection, donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; and use, storage, and handling of non-disposable clothing; and regulations covering personal protective equipment.
- (d)    *State-of-the-art work practices.* Proper work practices for asbestos abatement activities, including O&M practices and procedures, descriptions of proper construction and maintenance of barriers and decontamination

enclosure systems; positioning of warning signs; lock-out of electrical and ventilation systems, proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment, use of HEPA vacuums; and proper clean-up and disposal procedures. Work practices for O&M removal, encapsulation, enclosure, and repair of ACBM; emergency procedures for unplanned releases; potential exposure situations; transport and disposal procedures; and recommended and prohibited work practices. New abatement-related techniques and methodologies may be discussed.

- (e) *Personal hygiene.* Entry and exit procedures for the work area; use of showers; and avoidance of eating, drinking, smoking, and chewing (gum or tobacco) in the work area. Potential exposures, such as family exposure, shall also be included.
- (f) *Additional safety hazards.* Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, and confined spaces.
- (g) *Medical monitoring.* OSHA and EPA Worker Protection Rule requirements for physical examinations, including a pulmonary function test, chest X-rays and a medical history for each employee.
- (h) *Air monitoring.* Procedures to determine airborne concentrations of asbestos fibers, including descriptions of aggressive air sampling, sampling equipment and methods, reasons for air monitoring, types of samples and interpretation of results.
- (i) *Relevant Federal, State and local regulatory requirements, procedures, and standards.*
  - (i) Requirements of TSCA Title II.
  - (ii) National Emission Standards for Hazardous Air Pollutants (40 CFR part 61), Subparts A (General Provisions) and M (National Emission Standard for Asbestos).
  - (iii) OSHA standards for permissible exposure to airborne concentrations of asbestos fibers and respiratory protection (29 CFR 1910.134).
  - (iv) OSHA Asbestos Construction Standard (29 CFR 1926.58).
  - (v) EPA Worker Protection Rule, (40 CFR part 763, Subpart G).
- (j) *Respiratory Protection Programs and Medical Monitoring Programs.*
- (k) *Insurance and liability issues.* Contractor issues; worker's compensation coverage and exclusions; third-party liabilities and defenses; insurance coverage and exclusions.



- (l) *Recordkeeping for asbestos abatement projects.* Records required by Federal, State and local regulations; records recommended for legal and insurance purposes.
  - (m) *Supervisory techniques for asbestos abatement activities.* Supervisory practices to enforce and reinforce the required work practices and discourage unsafe work practices.
  - (n) *Contract specifications.* Discussions of key elements that are included in contract specifications.
  - (o) *Course review.* A review of key aspects of the training course.
2. **Project Designer:** a 3-day training course that includes lectures, demonstrations, a field trip, course review and a written examination.

Suggested topics include, but are not limited to:

- (a) *Background information on asbestos.* Identification of asbestos; examples and discussion of the uses and locations of asbestos in buildings; physical appearance of asbestos.
- (b) *Potential health effects related to asbestos exposure.* Nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency period asbestos related diseases, a discussion of the relationship between asbestos exposure and asbestosis, lung cancer, mesothelioma, and cancers of other organs.
- (c) *Overview of abatement construction projects.* Abatement as a portion of a renovation project; OSHA requirements for notification of other contractors on a multi-employer site (29 CFR 1926.58).
- (d) *Safety system design specifications.* Design, construction and maintenance of containment barriers and decontamination enclosure systems; positioning of warning signs; electrical and ventilation system lock-out; proper working techniques for minimizing fiber release; entry and exit procedures for the work area; use of wet methods; proper techniques for initial cleaning; use of negative-pressure exhaust ventilation equipment; use of HEPA vacuums; proper clean-up and disposal of asbestos; work practices as they apply to removal, encapsulation, enclosure, O&M and repair; use of glove bags and a demonstration of glove bag use.
- (e) *Field trip.* A visit to an abatement site or other suitable building site, including on-site discussions of abatement design and building walk-through inspection. Include discussion of rationale for the concept of functional spaces during the walk-through.

- (f) *Employee personal protective equipment.* Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing.
- (g) *Additional safety hazards.* Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards.
- (h) *Fiber aerodynamics and control.* Aerodynamic characteristics of asbestos fibers; importance of proper containment barriers; settling time for asbestos fibers; wet methods in abatement; aggressive air monitoring following abatement; aggressive air movement and negative-pressure exhaust ventilation as a clean-up method.
- (i) *Designing abatement solutions.* Discussions of removal, enclosure, O&M and encapsulation methods; asbestos waste disposal.
- (j) *Final clearance process.* Discussion of the need for a written sampling rationale for aggressive final air clearance; requirements of a complete visual inspection; and the relationship of the visual inspection to final air clearance.

EPA recommends the use of TEM for analysis of final air clearance samples. These samples shall be analyzed by laboratories accredited under the NIST Program.

- (k) *Budgeting/cost estimating.* Development of cost estimates; present costs of abatement versus future O&M costs; setting priorities for abatement jobs to reduce costs.
- (l) *Writing abatement specifications.* Preparation of and need for a written project design; means and methods specifications versus performance specifications; design of abatement in occupied buildings; modification of guide specifications for a particular building; worker and building occupant health/medical considerations; replacement of ACBM with non-asbestos substitutes.
- (m) *Preparing abatement drawings.* Significance and need for drawings, use of as-built drawings as base drawings; use of inspection photographs and on-site reports; methods of preparing abatement drawings; diagramming containment barriers; relationship of drawings to design specifications; particular problems related to abatement drawings.

- (n) *Contract preparation and administration.*
- (o) *Legal/liabilities/defenses.* Insurance considerations; bonding; hold-harmless clauses; use of abatement contractor's liability insurance; claims made versus occurrence policies.
- (p) *Replacement.* Replacement of ACBM with asbestos-free substitutes.
- (q) *Role of other consultants.* Development of technical specification sections by industrial hygienists or engineers; the multi-disciplinary team approach to abatement design.
- (r) *Occupied buildings.* Special design procedures required in occupied buildings; education of occupants; extra monitoring recommendations; staging of work to minimize occupant exposure; scheduling of renovation to minimize exposure.
- (s) *Relevant Federal, State, and local regulatory requirements, procedures and standards, including, but not limited to:*
  - (i) Requirements of TSCA Title II.
  - (ii) National Emission Standards for Hazardous Air Pollutants, (40 CFR part 61) subparts A (General Provisions) and M (National Emission Standard for Asbestos).
  - (iii) OSHA Respirator Standard found at 29 CFR 1910.134.
  - (iv) EPA Worker Protection Rule found at 40 CFR part 763, subpart G.
  - (v) OSHA Asbestos Construction Standard found at 29 CFR 1926.58.
  - (vi) OSHA Hazard Communication Standard found at 29 CFR 1926.59.
- (t) *Course review.* A review of key aspects of the training course.

## **5.2 APC Training Requirements**

Contractor/Supervisor course as described above for the position of APM, including the written examination.

## **5.3 Asbestos Worker Training Requirements**

Asbestos Workers shall attend the following course to fulfill the asbestos safety and management training described above:

1. **Worker:** a 4-day worker training course that includes lectures, demonstrations and at least 14 hours of hands-on training, individual respirator fit testing, course review and a written examination. Hands on training must permit workers to have actual experience performing tasks associated with asbestos abatement, including O&M activities.

A person who is otherwise accredited as a Contractor/Supervisor may perform in the role of an Asbestos Worker without possessing separate accreditation as an Asbestos Worker.

Suggested topics include, but are not limited to:

- (a) *Physical characteristics of asbestos.* Identification of asbestos, aerodynamic characteristics, typical uses, and physical appearance, and a summary of abatement control options.
- (b) *Potential health effects related to asbestos exposure.* The nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency periods for asbestos-related diseases; a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs.
- (c) *Employee personal protective equipment.* Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing; and regulations covering personal protective equipment.
- (d) *State-of-the-art work practices.* Proper work practices for asbestos abatement activities, including O&M practices and procedures, descriptions of proper construction; maintenance of barriers and decontamination enclosure systems; positioning of warning signs; lock-out of electrical and ventilation systems; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of high-efficiency particulate air (HEPA) vacuums; proper clean-up and disposal procedures; work practices for removal, encapsulation, enclosure, O&M and repair of ACBM; emergency procedures for sudden releases; potential exposure situations; transport and disposal procedures; and recommended and prohibited work practices.
- (e) *Personal hygiene.* Entry and exit procedures for the work area; use of showers; avoidance of eating, drinking, smoking, and chewing (gum or tobacco) in the work area; and potential exposures, such as family exposure.
- (f) *Additional safety hazards.* Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air

contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, and confined spaces.

- (g) *Medical monitoring.* OSHA and EPA Worker Protection Rule requirements for physical examinations, including a pulmonary function test, chest X-rays, and a medical history for each employee.
- (h) *Air monitoring.* Procedures to determine airborne concentrations of asbestos fibers, focusing on how personal air sampling is performed and the reasons for it.
- (i) *Relevant federal, state, and local regulatory requirements, procedures, and standards.* With particular attention directed at relevant EPA, OSHA, and State regulations concerning asbestos abatement workers.
- (j) *Establishment of respiratory protection programs.*
- (k) *Course review.* A review of key aspects of the training course.

#### **5.4 Asbestos Inspector Training Requirements**

Asbestos Inspectors shall attend the following course to fulfill the asbestos safety and management training described above:

1. **Inspector:** a 3-day inspector training course that includes lectures, demonstrations, 4 hours of hands-on training, individual respirator fit-testing, course review and a written examination. Where appropriate, audio visual materials and aids shall be used to complement lectures. Hands-on training shall include conducting a simulated building walk-through inspection.
  - (a) *Background information on asbestos.* Identification of asbestos, and examples and discussion of the uses and locations of asbestos in buildings; physical appearance of asbestos.
  - (b) *Potential health effects related to asbestos exposure.* The nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency periods for asbestos-related diseases; a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs.
  - (c) *Functions/qualifications and role of inspectors.* Discussions of prior experience and qualifications for inspectors; discussions of the functions of an accredited inspector as compared to those of an accredited asbestos worker, contractor/supervisor or designer; discussion of inspection process including inventory of ACBM and physical assessment.

- (d) *Legal liabilities and defenses.* Responsibilities of the inspector; a discussion of comprehensive general liability policies, claims-made, and occurrence policies, environmental and pollution liability policy clauses; state liability insurance requirements; bonding and the relationship of insurance availability to bond availability.
- (e) *Understanding building systems.* The interrelationship between building systems, including: an overview of common building physical plan layout; heating, ventilating, and air conditioning (HVAC) system types, physical organization, and where asbestos is found on HVAC components; building mechanical systems, their types and organization, and where to look for asbestos on such systems; inspecting electrical systems, including appropriate safety precautions; reading blueprints and as-built drawings/record documents.
- (f) *Public/employee/building occupant relations.* Notifying employee organizations about the inspection; signs to warn building occupants; tact in dealing with occupants and the press; scheduling of inspections to minimize disruptions; and education of building occupants about actions being taken.
- (g) *Pre-inspection planning and review of previous inspection records.* Scheduling the inspection and obtaining access; building record review; identification of probable homogeneous areas of suspect ACBM from blueprints or as-built drawings/record documents; consultation with maintenance or building workers; review of previous inspection, sampling, and abatement records of a building; the role of the inspector in exclusions for previously performed inspections.
- (h) *Inspecting for friable and non-friable ACBM and assessing the condition of friable ACBM.* Procedures to follow in conducting visual inspections for friable and non-friable ACBM; types of building materials that may contain asbestos; *touching materials* to determine friability; open return air plenums and their importance in HVAC systems; assessing damage, significant damage, potential damage, and potential significant damage; amount of suspected ACBM, both in total quantity and as a percentage of the total area; type of damage; accessibility; material's potential for disturbance; known or suspected causes of damage or significant damage; and deterioration as assessment factors.
- (i) *Bulk sampling/documentation of asbestos.* Detailed discussion of the "Simplified Sampling Scheme for Friable Surfacing Materials (EPA 560/5-85-030a October, 1985)"; techniques to ensure sampling in a randomly distributed manner for other than friable surfacing materials; sampling of non-friable materials; techniques for bulk sampling; inspector's sampling and repair equipment; patching or repair of damage from sampling; discussion of polarized light microscopy; choosing an accredited laboratory to analyze bulk samples; quality control and quality assurance procedures.

EPA's recommendation that all bulk samples collected from school or public and commercial buildings be analyzed by a laboratory accredited under the NVLAP administered by NIST.

EPA workers and representatives shall also be trained in accordance with EPA's "Health and Safety Guidelines for EPA Asbestos Inspectors," revised March, 1991. This document was developed by EPA for use by its workers in carrying out the Agency's various missions to control asbestos exposures through inspection activities. This document, in its entirety, is included in the SMs document which is a part of this Program.

- (j) *Inspector respiratory protection and personal protective equipment.* Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components for a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing.
- (k) *Recordkeeping and writing the inspection report.* Labeling of samples and keying sample identification to sampling location; recommendations on sample labeling; detailing of ACBM inventory; photographs of selected sampling areas and examples of ACBM condition; information required for inclusion in the management plan required for school buildings under TSCA Title II, section 203 (i)(1). Forms for recording the results of inspections in schools or public or commercial buildings, and the use of these forms shall be incorporated into the curriculum of training conducted for accreditation.
- (l) *Regulatory review.* The following topics shall be covered: National Emission Standards for Hazardous Air Pollutants (NESHAP; 40 CFR part 61, Subparts A and M); EPA Worker Protection Rule (40 CFR part 763, Subpart G); OSHA Asbestos Construction Standard (29 CFR 1926.58); OSHA respirator requirements (29 CFR 1910.134); the Friable Asbestos in Schools Rule (40 CFR Part 763, Subpart F); applicable State and local regulations, and differences between Federal and State requirements where they apply, and the effects, if any, on public and non-public schools or commercial or public buildings.
- (m) *Field trip.* This includes a field exercise, including a walk-through inspection; on-site discussion about information gathering and the determination of sampling locations; on-site practice in physical assessment; classroom discussion of field exercise.
- (n) *Course review.* A review of key aspects for the training course.

## 5.5 Course Examinations

An examination after each course will document the individual's comprehension of the course material. The examination will be based on the core instructional material and will contain questions selected by the instructor. A minimum score, as noted below, is required to pass the examination(s). If a worker fails to attain the minimum score, he/she will review the material, emphasizing weaknesses identified by the examination, and be retested until a passing score is attained. This testing requirement is necessary to ensure the worker's safety, because only comprehension of the course material, not simply attending the course, can adequately prepare the individual.

The following are passing score requirements for examination in each discipline based on The Federal Register, Thursday, February 3, 1994, Asbestos Model Accreditation Plan: Interim Final Rule, 40 CFR, Part 763, Appendix C to Subpart E, Section I.C.2:

**Contractor/Supervisor:**

100 multiple-choice questions.

Passing score: 70 percent correct.

**Project Designer:**

100 multiple-choice questions.

Passing score: 70 percent correct.

**Asbestos Worker:**

50 multiple-choice questions.

Passing Score: 70 percent correct.

**Asbestos Inspector:**

50 multiple-choice questions.

Passing Score: 70 percent correct.

Each certificate issued to an accredited person must contain the following minimum information:

1. A unique certificate number.
2. Name of accredited person.
3. Discipline of the training course completed.
4. Date(s) of the training course.
5. Date of the examination.
6. An expiration date of 1 year after the date upon which the person successfully completed the course and examination.
7. The name, address, and telephone number of the training provider that issued the certificate.
8. A statement that the person receiving the certificate has completed the requisite training for asbestos accreditation under TSCA Title II.

The written test shall be signed by both the instructor and student, and a copy retained by the SHEMP Manager to document a satisfactory level of course material



comprehension. Each student (worker) shall receive a signed certificate that indicates the successful completion of each course.

The above training requirements are established by and further defined by the Asbestos Model Accreditation Plan (MAP); Interim Final Rule, which published in the Federal Register on Thursday, February 3, 1994. This amended rule replaces the original MAP found at 40 CFR part 763, Appendix C to Subpart E, in its entirety, and fulfills a part of the mandate contained in section 15 of the Asbestos School Hazard Abatement Reauthorization Act (ASHARA). These provisions of ASHARA were enacted on November 28, 1990, and took effect on November 28, 1992. They served to extend asbestos accreditation coverage to include certain asbestos workers in public and commercial buildings, and stipulated that the minimum number of training hours required for accreditation was to be increased.

This rule amendment, effective April 4, 1994, establishes new training and accreditation standards for state accreditation programs and for the providers of accredited training courses. It further provides for a phased transition to comply with these new standards.

Single copies of this regulation may be obtained by contacting EPA's Toxic Substances Control Act (TSCA) Hotline in Washington, D.C. at (202) 554-1404. Questions regarding the interpretation or application of this rule may be directed to the appropriate EPA Regional Asbestos Coordinator.

## 5.6 Air Monitoring Training Requirements

Training for air monitoring that is currently available consists primarily of courses meeting the National Institute for Occupational Safety and Health (NIOSH) 582 requirements.

Training for persons performing air monitoring work shall include hands-on training with the equipment to be used.

Additional training may also be required by state or local regulations, and could include industrial hygiene training or other requirements, and attendance to courses beyond the NIOSH 582 program.

If contractors are used for air monitoring work, list them below.

Air Monitoring Firm:

Name of Firm
Address
City, State Zip
Contact

If needed, an appendix may be added to this document to include training forms or relevant information. Remember to include a reference here as well as at the Table of Contents.



## **Section 6      Inspecting Buildings for Asbestos-Containing Materials**

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No O&M Plan can be implemented until the presence of ACBM have been confirmed through a visual inspection of the facility, including the collection and analysis of bulk samples. In all likelihood, an inspection and survey have already been performed at facilities occupied or controlled by EPA. GSA procedures require that such an inspection, including collection and analysis of suspect ACM be performed before occupancy by federal agencies, including EPA.

Conducting an inspection and survey to identify and locate ACBM are normally performed by the building owner, but at times maybe assigned to a tenant (i.e. GSA, EPA or other federal agency) or operator of the facility. At other times, a tenant or operator may collect samples of suspect material(s) not previously sampled in the facility-wide inspection.

Asbestos School Hazard Abatement Reauthorization Act (ASHARA) regulations require that anyone collecting samples for purposes of determining the presence of asbestos must be an AHERA certified Asbestos Inspector.

AHERA inspection procedures are, by regulation, required only for schools. ASHARA requires certification and training only, not adoption of the sampling and inspection procedures.

Form and format of inspections and surveys vary greatly. All properly conducted inspections will have located and sampled all suspect surfacing, TSI and miscellaneous materials. The facility's full inspection and survey report shall be made a part of the facility's O&M Plan to clearly identify ACBM locations. The inspection report shall also describe the condition of all asbestos materials so selection of the proper response action and O&M procedures can be implemented.

Any O&M Plan is based upon the facility's inspection and survey report. If one has not been conducted, or it is determined that the current inspection may be inadequate, conducting a proper inspection for ACBM is strongly encouraged.

**If needed, an appendix may be added to this document to include inspection forms and reports. Remember to include a reference here as well as at the Table of Contents.**



## **Section 7      Sampling and Analytical Methods Pertaining to Asbestos-Containing Materials**

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### **7.1      General**

Sampling and analytical methods are important tools for assessing and monitoring asbestos-containing materials. The applications of sampling and analyses may range from bulk sampling of suspect materials; to estimating airborne fiber levels before, during, and after an abatement project; to checking surfaces for asbestos-containing settled dust. Collection of reliable data requires a thorough knowledge of the various sampling and analytical techniques which are available and when a particular technique shall be used.

This general discussion is an introduction only to the types of sampling methods and various analytical techniques used for ACBM.

### **7.2      Sampling Methods**

#### **1.      Air Sampling**

Air sampling is conducted to determine airborne fiber concentrations before, during, and after abatement activities. Sampling is conducted with battery-powered pumps, which are used to pull low volumes of air (0.5 - 4 liters per minute) and/or electric pumps which pull high air volumes (4 - 10 liters per minute). Pumps are calibrated before and after use. A plastic cassette which holds a filter with a very small pore openings is attached to the pump with flexible tubing. With the front cover of the cassette removed, air is drawn through the filter by the pump and particles in the air are collected on the filter surface. The type of filter used for sampling depends on the technique which will be used for analysis.

The basic types of air sampling are area and personal monitoring and clearance sampling. Area air samples are taken with a pump that is placed at breathing zone height at some stationary location. The top cover of the plastic filter holder is removed and the filter holder is pointed downward (at approximately 45° angle) to prevent material from falling onto the filter. The pump is turned on and the start time and sample description are recorded. The pump shall be checked periodically (every 30 minutes) to make sure it is functioning properly. Being careful not to disturb the sampling operation, the filter shall also be visibly inspected for overloading. At the end of the sampling period, the pump is turned off and the cover of the filter holder is replaced and secured with tape. The stop time and any other comments about sampling conditions are then recorded.

Personal samples are collected from within the breathing zone (as close to the nose and mouth area as possible) of an individual, but outside the respirator. Personal samples are collected in the same manner as area samples except the pump is hung from a disposable tape belt around the worker's waist and the filter holder is attached, pointing downward, to the worker's lapel or collar.

Clearance sampling is performed at the completion of a response action to determine if the quantity of asbestos fibers remaining in the air are below the established clearance level.

Area air samples can be collected using static or aggressive sampling techniques. Static sampling implies monitoring an area as it is without creating any additional disturbance in the air. This method is typically used during the removal phase of the abatement project. An obvious criticism of this technique for clearance sampling when no one is in the area is that the fibers that have settled out of the air are not detected. An alternative sampling technique which addresses this concern is to create an artificial disturbance in the air during sampling. Aggressive sampling can be accomplished by using 1 horsepower electrically powered leaf blowers, electric fans, sweeping, blowers, etc. Aggressive air sampling shall only be conducted in spaces under containment. **NEVER AGGRESSIVELY AIR SAMPLE AN OPEN OR OCCUPIED AREA.**

## 2. Bulk Sampling

Bulk sampling is the technique used to collect physical samples of suspect materials such as fireproofing, pipe lagging, boiler insulation, and acoustical spray. Bulk sampling is usually conducted during the building survey/hazard assessment phase and provides data for decisions on response actions or control measures. Collection and laboratory analysis of suspect ACM are the only conclusive method to determine the presence of asbestos. Identification by visual observation is not possible.

A small sample of suspect material is collected and placed in a container (i.e. a 35 mm film canister). Further guidance may be found in Guidance for Controlling Asbestos-Containing Materials in Buildings, (EPA's Purple Book) Appendix G, or Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Material (Pink Book) (EPA 560/5-85-030a). Anyone taking bulk samples shall wear a minimum of a half-face cartridge respirator (a Powered Air Purifying Respirator (PAPR) is preferred) and protective clothing. Bulk samples are analyzed by an analytical laboratory, typically using polarized light microscopy, to determine if asbestos is present and the type and percentage of asbestos in the sample. Bulk samples can also be analyzed by electron microscopy.

All bulk sampling work shall be performed in accordance with EPA's document entitled "Health and Safety Guidelines for EPA Asbestos Inspectors," revised in March, 1991 or the current version in effect. A copy of this document, in its entirety, is included in the SMS document which is a part of this program.

## 3. Settled Dust Sampling

Sometimes, it is beneficial to determine whether the settled dust within a facility contains asbestos. For instance, during the building inspection/survey when investigating for the presence of ACM, an owner may request that the inspector determine whether asbestos fibers are being released in the building environment.

In the past, an air sample might have been collected to determine whether airborne asbestos fibers are present. However, the EPA does not recommend the use of air sampling for this purpose as it tends to provide only a "snapshot" picture of building conditions. As an alternative, samples of settled dust may be collected to indicate fiber release from ACBM.

Sampling settled dust can be accomplished in many ways. Dust can be collected by scraping an area (with a credit card, for instance) and placing the material in a small container for analysis as a "bulk" sample by polarized light or electron microscopy. Alternatively, samples can be collected by "vacuuming" an area with a filter in a cassette which is attached to a battery operated personal sampling pump. This method is referred to the "micro-vacuuming" technique, and is widely held to be a more reliable method. The filter is analyzed by electron microscopy.

It is important to note that most settled dust sampling will typically provide only qualitative results. In other words, dust samples shall only be used to determine the presence or absence of asbestos fibers in accumulated dust, and not as a tool to determine the amount of asbestos fibers being released from a particular material. Also, the absence of asbestos fibers in settled dust does not necessarily mean asbestos fibers are not being released, just that none were present (or detected) in that particular accumulation of dust.

### 7.3 Analytical Methods

The primary analytical techniques used for analyzing airborne fibers collected on filters are phase contrast microscopy (PCM), and transmission electron microscopy (TEM). Bulk samples are generally analyzed by polarized light microscopy (PLM), but are in certain instances also analyzed by TEM.

#### 1. Phase Contrast Microscopy (PCM)

Phase contrast microscopy (PCM) is a technique using a light microscope equipped to provide enhanced contrast between the fibers and the background. Samples for PCM are collected on a mixed cellulose ester (MCE) membrane filter with a 0.8 micrometer pore size. Filters are then cleared with a chemical solution so that trapped particulate material can be viewed through the microscope at a magnification of approximately 400X. PCM is inexpensive and can be performed on the job site in a few hours.

Phase contrast microscopy is frequently referred to as the light microscope method, the filter membrane method, or the NIOSH method. PCM is the analytical method specified in the Occupational Safety and Health Administration (OSHA) Asbestos Standard. PCM was first used to monitor asbestos exposure to workers in asbestos product manufacturing or milling operations for prevention of asbestosis. This method does not distinguish between fiber types and only counts those fibers longer than 5 micrometers and wider than about 0.25 micrometers. Because of these limitations, fiber counts by PCM typically provide only an index of the total concentration of airborne asbestos in the environment monitored. As

the proportion of the airborne fibers which are less than 0.25 micrometers in diameter increases (i.e., non-industrial settings such as asbestos abatement projects), PCM becomes a less reliable analytical tool.

## 2. Transmission Electron Microscopy

Transmission electron microscopy (TEM) is a technique which focuses an electron beam onto a thin sample. As the beam transmits through certain areas of the sample, an image resulting from varying density of the sample is projected onto a fluorescent screen. Air samples are collected on a mixed cellulose ester filter for TEM analysis. With today's widespread availability of qualified labs, the analyses can usually be performed within 24-48 hours.

Transmission electron microscopy is considered the best available analytical method for identifying asbestos fibers collected on air samples in non-industrial settings. TEM can identify the smallest fibers and is specific for asbestos.

The TEM final air clearance method is required for schools under AHERA regulations to determine if an area has cleared, and is available for re-use with protective equipment.

## 3. Polarized Light Microscopy (PLM)

Polarized light microscopy (PLM) is the most commonly accepted method for analyzing bulk materials for the presence of asbestos. This method is inexpensive and can be performed in a few hours. PLM is based on optical mineralogy using a light microscope equipped with polarizing filters. Identification of asbestos fiber bundles is based on the determination of optical properties displayed when the sample is treated with various dispersion staining liquids (refraction index liquids).

The reliable limit of detection for this method is about one percent asbestos. Samples of extremely fine dusts, such as brake dust, shall be analyzed by electron microscopy which can detect the smaller fibers. Negative results for floor tile shall be verified by a TEM analysis, due to the small fiber sizes.

## 7.4 Sampling Strategies and Procedures for an Abatement Project

### 1. Air Sampling Before Abatement Begins

Area air sampling conducted before abatement activities begin to estimate the existing airborne fiber concentrations inside and outside the building is termed prevalent level sampling. These results can be used as control data for comparing sample concentrations detected during and after the abatement project. Background level sampling provides good data for documentation purposes. It is particularly useful when an abatement project is conducted in a portion of the building, with other areas of the building remaining occupied. Airborne fiber levels monitored in these occupied areas during the abatement project shall never exceed the indicated background level in these areas before the project began.



Also, the airborne fiber concentrations inside the abatement area after cleanup is completed cannot be expected to be lower than the airborne fiber levels outside the building before abatement began. PCM analysis is most often used, but shall be supported by selected TEM analysis to more accurately confirm the presence of asbestos fibers.

Because low airborne fiber concentrations are typically found prior to abatement activities, a large volume of air shall be sampled to obtain a low detection limit. Simply stated, detection limit is the lowest value that can be reliably reported for the sampling and analytical methods used. The volume of air measured to obtain 0.01 fiber per cubic centimeter of air (fiber/cc) detection limit shall range between 1,000 to 2,500 liters, depending on the filter size and counting method used. Samples can be collected at a flow rate of 2-15 liters per minute.

Background samples shall be collected throughout the building as well as in the areas where abatement will take place. As a rule of thumb, one sample shall be taken for every 50,000 cubic feet (5,000 sq. ft. with 10 ft. ceilings) of building space (minimum of 3 samples). At least two samples shall be collected from outside the building.

Because results of background level sampling are used as baseline data, the same sampling and analytical techniques shall be used for background samples as will be used for samples taken outside the work area during and after the removal project.

## 2. Personal Sampling

Personal sampling is conducted during a renovation or abatement project to determine employees' exposure (outside any respirator) to airborne fibers. Data from personal monitoring serves many purposes. Personal monitoring during an abatement project is required by the OSHA Asbestos Standard unless Type C supplied air respirators are used. Under OSHA and hazard communication laws, employees have the right to know the asbestos concentrations to which they are exposed and what measures are being taken to protect them. Also, results of personal sampling can be used to select proper respiratory protection for an employee if conditions warrant something other than Type C respirators. Data from personal monitoring can be used as an indication of effective removal or control techniques which result in the lowest employee exposure. This, in turn, reduces the potential of asbestos-related diseases and the risk to the worker.

Personal samples shall be taken during the first full day of removal activity. Additional personal samples shall be taken when the type of material being removed or the location (i.e., building) changes. Personal samples shall be collected throughout the duration of the project for compliance with current OSHA regulations, unless Type C respirators are being used. Even with Type C respirators it is prudent practice to conduct personal air monitoring every two weeks, and when work practices or conditions change significantly.

Personal samples shall be collected at flow rate of 1-2 liters per minute from at least 25% of the workers doing a particular job. Samples for asbestos exposure shall be taken to determine the 8-hour, time-weighted average (TWA) concentration. Over an eight-hour period, filters may have to be changed several times to prevent overloading. Results of each sample are put into this equation to obtain a time-weighted average for the total sampling period.

$$\frac{C_1T_1 + C_2T_2 + C_3T_3 \dots}{T_1 + T_2 + T_3 \dots} = \text{Time Weighted Average (TWA)}$$

$C_1, C_2 \dots$  = Concentration of each sample

$T_1, T_2 \dots$  = Duration of each sample

Typically, PCM is used to analyze personal samples collected during the removal project.

### 3. Area Air Sampling Inside the Work Area

In addition to personal samples, area air samples are collected inside the work area daily to determine the concentrations of airborne asbestos fibers. Usually, two to three PCM air samples are usually adequate to index the airborne fiber concentrations inside the work area. The data from these samples can be used on a relative basis to monitor work conditions from one day to the next. A radical increase in area concentrations would signal that work practices need to be adjusted.

### 4. Area Air Sampling Outside the Work Area/Inside the Building

During an abatement project, samples are collected from locations outside the work area, but inside the building to determine how well asbestos fibers are being contained to the worksite. These samples are especially important in situations where unprotected people are occupying other areas of the building. Potential leakage points where sampling shall be conducted include the clean side of the containment barriers separating the work area from occupied parts of the building and inside the shower and clean rooms of the decontamination unit. If the abatement project is being conducted in a multistory building, area air samples shall be collected from floors above and below the abatement activity.

A large air volume is necessary to obtain the desired detection limit of 0.01 fibers per cubic centimeter (0.01 f/cc) for these samples. High volume pumps can be used to shorten the sampling time so that problems which develop can be detected relatively quickly. Phase contrast microscopy is generally the analytical method used for these air samples.

AHERA's air clearance collection and TEM analysis method can also be used to determine background levels inside and outside the building.

## 5. Area Air Sampling Outside the Building

Area air samples are placed in locations outside of the work area during an abatement project to detect leakage for fibers from the worksite. Typically, pumps are placed at the entrance of the decontamination unit, at doors or windows, near the exhaust of negative air filtration units, and at the waste load-out area. Generally, samples are collected using high volume pumps, and analyzed by PCM.

## 6. Air Sampling After Final Cleanup of the Work Area

Area air sampling is conducted upon conclusion of an asbestos abatement project to estimate the airborne fiber concentrations of residual fibers. The area must pass a thorough visual inspection for remaining material before final clearance sampling is initiated. Samples are placed inside the work area, and inside the building/outside the work area. AHERA's protocol and minimum number of samples (13) have been generally accepted by the asbestos abatement industry.

Ideally, phase contrast microscopy and electron microscopy are used in combination as a two-stage process for final clearance sampling. Phase contrast analyses can be used to determine if any gross contamination remains in the work and side-by-side samples can be taken for analyses by electron microscopy. If the PCM samples indicate airborne fiber levels are below 0.01 f/cc using aggressive sampling techniques, then the next set of samples are collected per the AHERA protocol and submitted of analyses by TEM. As discussed earlier, TEM is the analytical method recognized as having the best resolution and positive fiber identification capabilities, and is required by AHERA for schools.

The airborne fiber concentration for clearance by TEM is 70 structures per square millimeter (s/mm<sup>2</sup>), based on the average of the results for all inside workers' samples. If the results by TEM analysis indicate the airborne fiber concentrations are higher than this clearance standard, then the area must be recleaned and retested until the criterion is met.



## **Section 8     Personal Protective Equipment and Decontamination Procedures**

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Selection of personal protective equipment (PPE) for O&M work includes the selection of respirators, protective clothing, gloves, boots, hardhats, and/or other equipment that might be necessary for a specific task.

### **8.1     Respirators**

Respirators used for O&M activities must be selected based on the requirements of regulations and a Respiratory Protection Program developed in accordance with OSHA standard 29 CFR 1910.134 or the EPA "Worker Protection Rule" (40 CFR 763.120,121), as applicable, for the O&M workers.

1.     Appendix 'E' of the EPA Green Book includes EPA's recommendations on the types of respirators to be used for custodial and maintenance tasks.
2.     Liability concerns, historical data and management policies might also influence whether respirators are used, and if so, the type of respirators for O&M activities.
3.     NIOSH recommends minimizing occupational exposure to cancer producing substances, such as asbestos to the lowest feasible level.
4.     A calculated maximum exposure level for workers of 0.01 f/cc of air inside the respirator is to be used by EPA workers when selecting respiratory protection in accordance with EPA guidance.
5.     OSHA has stated that the OSHA permissible exposure limit (PEL) was selected as a technical and economic compromise for industry, and is not designed to totally prevent cancer causing exposures. The EPA's White Book and the Introduction and Section 01562 of the NIBS Asbestos Abatement Guide Specification contain information regarding respirator selection that might be helpful to the APM. Review of this additional information is strongly encouraged. EPA workers' selection of personal protective equipment, including respiratory protection, is detailed in EPA's "Health & Safety Guidelines," revised March, 1991.
6.     Full face PAPRs shall be desirable to provide additional eye and face protection for workers and are the minimum level of respiratory protection used by EPA asbestos inspectors.
  - (a)     PAPR's are preferred by many workers instead of negative pressure respirators.
  - (b)     OSHA regulations 29 CFR 1910.1001 and 29 CFR 1926.58 require that an employer provide a PAPR in lieu of a negative pressure respirator if an employee chooses to use this type of respirator.

7. Depending upon the type of work and work practices to be used, combination respirator filter cartridges or a different type of respirator might be necessary to protect workers from other contaminants or hazardous substances.
8. Respiratory protection for asbestos work requires the use of high efficiency particulate air (HEPA) filter cartridges.

## **8.2 Protective clothing**

Protective clothing for O&M work typically consists of disposable coveralls, gloves and/or boots.

1. Protective clothing for O&M work can be selected by the APM or the worker, depending upon the O&M procedures.
2. The protective clothing option selected might depend in part upon the decontamination procedures to be used and the type of work area preparation or enclosure.
3. The APM shall also determine whether boots, gloves, hardhats and other protective equipment are needed for O&M tasks.
4. Protective clothing selections made by the APM shall be recorded on the Maintenance Work Authorization Form.

## **8.3 Decontamination procedures**

Decontamination procedures typically used for O&M work include HEPA vacuuming on a drop cloth, changing in a change room, or showering.



## **Section 9     O&M   Plan Purpose and Scope**

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### **9.1     O&M Plan Purpose**

1.     The purpose of an O&M Plan is to minimize exposure of all building occupants to asbestos fibers. An O&M plan includes work practices to:
  - (a)     maintain ACBM in good condition and minimize the release of asbestos fibers by controlling activities which may disturb ACBM;
  - (b)     minimize airborne asbestos exposure for building occupants, maintenance/custodial workers and the public;
  - (c)     establish procedures for controlling and containing ACBM which has been disturbed or has released fibers and dust or debris;
  - (d)     establish administrative procedures and work practices to achieve the objectives for the program;
  - (e)     monitor ACBM through periodic visual surveillance.

### **9.2     Levels of O&M Projects**

O&M work is divided into three levels. These levels are based on the NIBS O&M Work Practices Manual, which contains the work practices to be used in conjunction with this program. The NIBS document forms the basis of the SMs document included within this Program.

The three levels are:

1.     **Level 1:**     Work practice is usually intended to avoid a disturbance of ACBM and release of asbestos fibers, but if ACBM are disturbed, it is likely that worker and building occupant exposures will be minimal.
2.     **Level 2:**     Work practice is likely to or intended to disturb small amounts of ACBM for short periods of time. Worker protection and localized engineering controls are justified, but the disturbance is unlikely to create building occupant exposure or impact the building environment.
3.     **Level 3:**     Work practice is intended to disturb small amounts of ACBM in ways sufficient to justify engineering controls, and protection of workers, building occupants and the building environment.

### **9.3     Work Scheduling**

1.     Level 2 and 3 work shall be scheduled for a time when the work area will not be in use and can be closed off to anyone other than trained workers, or other authorized personnel.
2.     If an area is always occupied, plans shall be made to isolate the work area from building occupants using visual and/or physical barriers.



3. If a special work area arrangement is required, it might be beneficial to provide a sketch to the workers showing how the area is to be set up.
4. If respirators are used for Level 1 activities, it might be desirable to vacate the area to avoid concerns resulting from a worker in a respirator working within sight of unprotected workers/occupants.
5. Scheduling of work might be affected by notification requirements. All notification requirements shall be met before work is scheduled.
6. Under certain circumstances, some emergency work can be performed prior to the filing of a notification.
7. Review regulations and contact federal, state and local regulatory agencies concerning notification requirements for emergency work.

#### **9.4 Appointing the APM and APC**

The appointment of the APM and APC (if required) is the first step to be completed in implementing the Program for the management of ACBM at EPA occupied or controlled facilities. The APM shall have overall responsibility for ensuring that the SOPs and SMS of the Program are properly executed. An APC shall work with the APM to see that EPA's workers are protected in accordance with the Policy and Program when work on ACBM is performed.

An important aspect of this program is that it is designed to work for the different ownership and lease arrangements commonly used for EPA occupied or controlled facilities:

1. EPA owned and managed facility (EPAO).
2. EPA leased facility (EPAL).
3. EPA facility owned and managed by GSA (GSAO).
4. EPA facility leased by GSA (GSAL); including EPA Occupied/EPA Delegated.
5. EPA facility accessed through an Inter-Agency Agreement (IAG).

The lease arrangement for [Name of Facility] is [REDACTED].

A successful asbestos O&M Management program requires the cooperation and participation of all occupants of the facility. Workers performing asbestos O&M work must follow the SOPs and SMS included in this Program to achieve the objectives listed above.

The Policy, SOPs and SMS apply to any facility(ies) to be occupied by the EPA and shall be made a part of any space solicitations or lease agreements.

The Documentation Package for Asbestos Operations and Maintenance Programs in the U.S. General Services Administration (GSA) Facilities (dated September 24, 1990), is referenced in this Program and utilized to provide consistency in documentation. Applicable forms are included in the appendices.

The Program utilizes as its SMs, the asbestos-related work practices developed by the National Institute of Building Sciences (NIBS) in the NIBS document entitled "Guidance Manual, Asbestos Operations and Maintenance Work Practices".

## **9.5 Assigning Workers**

Workers assigned to perform O&M work shall have:

1. Training and experience in the skills and techniques required for the type of work to be performed.
2. Training in applicable asbestos O&M procedures.
3. The O&M plan for the facility.
4. Site-specific building conditions.

The EPA Green Book, NIBS document and SMs document of this Program provide guidance concerning the level of training recommended for conducting different types of O&M activities.

State and local regulations may impose training requirements for O&M activities.

1. Verify that state and local requirements are met before scheduling work.
2. Additional training might be desirable for performing frequent O&M work or certain O&M tasks.

Before workers are assigned to O&M work, the APM shall verify that their training, respirator fit tests and medical surveillance are current and in compliance with applicable regulations and the requirements of work practices to be used.

Once workers are selected for a task, the APM (and/or APC) shall review the work practice with the workers.

## **9.6 Elements of an O&M Plan**

- 9.6.1. Building Inspection and Assessment: To determine if an asbestos control and management program shall be implemented, the building owner shall conduct (or shall have already conducted) an initial building inspection and survey to locate and assess the condition of all ACBM in the building.

Any building to be occupied or controlled by EPA shall be inspected as described under this Program prior to use or occupancy. Each inspection shall be performed by an accredited or certified asbestos inspector.

For each inspection, the certified inspector shall provide a written assessment of all friable known or assumed to be present in the building. The inspector shall classify and give reasons for classifying the ACBM and suspected ACBM into one of the seven categories defined below:

- 1) Damaged or significantly damaged thermal system insulation ACBM.
- 2) Damaged friable surfacing ACBM.
- 3) Significantly damaged friable surfacing ACBM.
- 4) Damaged or significantly damaged friable miscellaneous ACBM.
- 5) ACBM with potential for damage.
- 6) ACBM with potential for significant damage.
- 7) Any remaining friable ACBM or friable suspected ACBM.

An effective O&M plan shall address all types of ACBM present in a building. ACBM that may be managed as part of an O&M plan in buildings can be classified in one of the following categories, which have been used in recent EPA guidance documents on ACBM. The SMs are divided into the same three categories.

- **Surfacing Material:** Examples include ACBM sprayed or troweled onto surfaces, such as decorative plaster on ceilings or acoustical ACBM on the underside of concrete slabs or decking, or fireproofing materials on structural members.
- **Thermal System Insulation (TSI) Material:** Examples include ACBM applied to pipes, boilers, tanks and ducts to prevent heat loss or gain, or condensation.
- **Miscellaneous Material:** Examples include asbestos-containing ceiling or floor tiles, textiles, and other components such as asbestos-cement panels, asbestos siding and roofing materials.

- 9.6.2 Asbestos Safety Training. Adequate asbestos safety training of personnel who may be required to enter work areas where there is the potential for exposure to asbestos fiber concentrations above normal background levels is a Program principle. Individuals occupationally exposed to asbestos and managers of activities involving asbestos are to be instructed on the basic risks to health from asbestos and on basic asbestos protection principles. The development of all training materials shall take into consideration employees' duties, nature of work assignments, and responsibilities. The primary goal of asbestos safety training is to provide the worker(s) with the knowledge necessary to safely work with, or around, asbestos-containing building materials and sources of asbestos fibers in a manner consistent with Program principles.

Training shall be provided for:

- The APM
- The APC
- Asbestos Workers
- Asbestos Inspectors

**9.6.3 Asbestos Exposure Monitoring.** The primary goal of EPA's exposure monitoring program is to optimize the level of protection for workers and the building environment, and to demonstrate and document such protection. This is accomplished by collecting information derived from occupational and environmental exposure data, which can be used by managers and workers in order to maintain exposures to program levels. A specific objective of the EPA Program is to reduce the risk to workers' health associated with exposure. Supplementary objectives include developing information regarding the trends of fiber exposures received by workers, environmental conditions in workplaces, and exposure risks associated with particular operating practices and/or work sites. Other analyses of monitoring data may be performed to identify opportunities for improving operating practices and methods, and enhancing overall Program quality.

Exposure and air monitoring work to be performed as a part of this SOP shall include:

**1. Initial Air Monitoring for workers**

Initial monitoring is discussed in paragraph (f)(2) of OSHA standard 29 CFR 1926.58:

"Initial monitoring. (i) Each employer who has a workplace or work operation covered by this standard, except as provided for in paragraphs (f)(2)(ii) and (f)(2)(iii) of this section, shall perform initial monitoring at the initiation of each asbestos, tremolite, anthophyllite, actinolite job to accurately determine the airborne concentrations of asbestos, tremolite, anthophyllite, or actinolite to which employees may be exposed."

Data generated by exposure monitoring performed in accordance with OSHA requirements may be used for historical data initial monitoring exemptions. The OSHA requirements for exposure monitoring data under the Construction Industry Asbestos Standard (29 CFR 1926.58) are specified in paragraph (f)(2)(iii).

"Where the employer has monitored each asbestos, tremolite, anthophyllite, or actinolite job, and the data were obtained during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employers current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (f)(2)(i) of this section." (Paragraph (f)(2)(i) is the initial monitoring requirement.)

## 2. Area Air Monitoring

OSHA requires periodic monitoring unless supplied air respirators are used. Periodic monitoring is discussed in paragraph (f)(3) of OSHA standard 1926.58:

"Periodic monitoring within regulated areas. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work in a regulated area. Exception: When all workers are equipped with supplied-air respirators operated in the positive pressure mode, the employer may dispense with the daily monitoring required by this paragraph."

## 3. Clearance Air Monitoring

Termination of monitoring is discussed in (f)(4) of OSHA standard 1926.58:

"Termination of monitoring. If the periodic monitoring required by paragraph (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurements, are below the action level, the employer may discontinue monitoring for those workers whose exposures are represented by such monitoring."

Initial air monitoring is required by OSHA regulations to document levels of airborne ACM in the breathing zone of workers. Initial monitoring shall be performed during all asbestos O&M projects unless statistically reliable historical exposure monitoring data in strict accordance with the OSHA requirements has been previously obtained for the level and type of work being done. At the APM's discretion, personal air monitoring may be conducted for all asbestos O&M work. All initial monitoring samples shall be analyzed by PCM in accordance with the OSHA reference method.

Area air monitoring shall be performed during asbestos O&M work to document levels of airborne asbestos in or near a work area. Area air monitoring is most commonly used outside of the immediate work area to provide documentation that contamination has not spread to other areas of a facility. Area monitoring is not required by OSHA, but may be used for all asbestos O&M work if desired by the APM. Area monitoring is also used for background monitoring prior to the start of a project.

Clearance air monitoring is used to verify the airborne fiber levels are reduced below the required clearance level or background levels existing prior to the start of work. Clearance monitoring shall be used on all asbestos O&M projects unless historical data has indicated that airborne fiber levels for the work shall not exceed the required clearance level.

All projects needing clearance sampling shall be cleared by PCM using at least 3 samples obtained in the work area. All samples must be below a clearance level

of 0.01 f/cc or equivalent to the pre-work background fiber level for the work to be considered complete. If the samples are not below these clearance levels, the area must be re-cleaned and re-tested until the established clearance level is obtained.

Exposure monitoring will be needed to validate that each work practice level meets the intended exposure goals. To fit within the level definitions, the following must hold true:

- Level 1 (No Worker or Area Protection) work practices shall not result in elevated airborne asbestos levels.
- Level 2 (Worker Protection, with Minimal Area Protection) work practices may result in localized elevations of airborne asbestos levels that will only affect the worker, but not the building environment.
- Level 3 (Worker and Area Protection) work practices may, if uncontrolled, result in elevations of airborne asbestos levels that are sufficient to require worker protection and isolation of the work area from the rest of the facility.

The only way that a work practice can be validated is to monitor airborne levels during the work. Personal monitoring is required to determine if work area isolation is needed. If no disturbance of ACBM will occur (such as with many Level 1 work practices), monitoring might not be required.

The Air Monitoring Program developed for a specific facility needs to address how exposure monitoring will be conducted to provide data for use in the design and validation of work practices. The program shall define exposure limits for both workers and the building environment.

The PCM air monitoring required by OSHA for exposure monitoring does not distinguish between asbestos and non-asbestos fibers. TEM analysis of clearance samples is required by the federal government under AHERA for applicable school projects. EPA's Program follows this protocol, although it is not required for non-school buildings.

Under EPA's Asbestos Program, to obtain O&M clearance after Level 2 and 3 work, the following procedure is established:

- Personal monitoring shall consist of samples to obtain an 8 hour time-weighted average (TWA), if possible, and excursion limit (EL) monitoring samples.
- Analysis by PCM.
- Analysis by TEM of 20% of air tests taken as a validation check.

This procedure shall be used before and after dust sampling, as a quality control method. It may also be used in special circumstances (for example, if the APM is unsure of what level work practice to use for a particular project).

Full air clearance by TEM as set forth by AHERA is required only for schools, but can be used in non-school buildings, and is recommended for removal projects involving large quantities of surfacing material, i.e., fireproofing, acoustical plaster, etc.

Aggressive air sampling techniques shall be used only when the test area is contained. Aggressive disturbance of open areas shall not be undertaken.

The use of TEM analysis or settled dust sampling to evaluate the need for precleaning prior to an O&M activity might be considered. Neither method is required by current regulations. Settled dust sampling can also be used during O&M activities to document disturbances during the activity. Settled dust sampling might be used as part of a clearance protocol for O&M work. No regulatory standards for dust sampling exist at this time. The APM might want to consult with an experienced laboratory or consultants regarding the latest settled dust sampling procedures and protocols. Procedures commonly in use include microvacuuming, surface wipe samples, and tape lift methods.

Some asbestos consultants recommend examining settled dust for accumulations of asbestos fibers as another surveillance tool in an O&M program. While no universally accepted standardized protocols currently exist for sampling and analysis of settled dust, positive results (i.e., ACBM are present in the dust) may indicate the need for special cleaning of the affected area, or other action. Because the results of this testing are difficult to interpret and evaluate at this time, building owners shall carefully consider the appropriateness of this testing to their situation.

**Workplace Control Level (WCL).** The WCL is  $70 \text{ s/mm}^2$ , as determined by the TEM analysis methodology established by AHERA.

The establishment of a WCL is consistent with the AHERA regulations established for public and private schools.

**Personnel Monitoring.** Personnel monitoring means determining individual workers' exposure(s) to asbestos fibers. Information derived from personnel monitoring is used for minimizing the exposure to certain tissues and organs of workers; and for minimizing the collective exposure of workers. This approach limits risks to the health of both individuals and groups of workers. Exposures can be determined through a variety of methods, including measurements derived from air pumps and sampling devices placed in the work area and/or placed on the worker's person in their breathing zone. Routine individual monitoring constitutes regularly repeated or continuous measurements made for individuals. Collected data is used for calculating estimated exposures.

OSHA and EPA regulations require workers to wear respirators and protective clothing whenever they are exposed, or likely to be exposed, to fiber levels above OSHA's permissible levels. It is important that workers be properly trained in the use of respirators and protective clothing. All asbestos O&M activities may not require the use of respirators and protective clothing. Worker and respiratory protection required for asbestos O&M activities are described by the SMs. The APM shall be trained in the selection of respiratory protection and personal protective equipment.

Respirators used shall be approved by MSHA and NIOSH. A respiratory protection program is required by OSHA for workers that use respirators. Workers must be properly fit-tested to wear assigned respirators.

**9.6.4 Medical Surveillance.** Federal regulations require those workers who remove, enclose or encapsulate asbestos-containing materials to participate in a medical surveillance program provided by their employer, at no cost to the worker(s). Workers involved in building maintenance, repair, renovation and demolition activities shall also participate.

Each asbestos worker participating in a medical surveillance program shall complete a standardized medical questionnaire of medical and work histories, and undergo a physical examination with emphasis on lungs, heart and digestive systems.

All medical exams and procedures must be performed by or under supervision of licensed physician without charge to employee at a reasonable time and place.

If needed, an appendix may be added to this document to include medical monitoring reports or information. Remember to include a reference here as well as at the Table of Contents.

#### **9.6.5 Notification Program**

##### **Initial Notifications**

All building occupants and maintenance workers shall be informed about the location and physical condition of any ACBM in their building that they might disturb. The need to avoid disturbing the ACBM shall be stressed. Occupants shall be notified for two reasons:

1. Building occupants shall be informed of any potential asbestos hazard in their vicinity.
2. Informed persons are less likely to unknowingly disturb the material and cause fibers to be released into the air.



It is important to undertake an open approach to the ACBM notification procedure. Clear lines of communication shall be established with building occupants regarding asbestos issues. People who are informed of the presence, location and condition of ACBM in a building where they work or live, who understand that the mere presence of ACBM is not necessarily hazardous to them, and who accept that ACBM can often be managed effectively in place can be very helpful in eliminating or reducing hysteria on the part of other less informed building occupants.

In service and maintenance areas (such as boiler rooms), labels or signs such as "Caution - Asbestos - Do Not Disturb" placed directly on or adjacent to thermal system insulation ACBM will alert and remind maintenance workers not to inadvertently disturb the ACBM. In most cases, all boilers, pipes, and other equipment with ACBM in service areas where damage may occur shall have prominent warning labels or signs placed on or next to the ACBM. Based upon the most recent visual inspection of an area, areas with damaged ACBM may require respiratory protection and protective clothing for entry into these areas.

The EPA occupant notification program consists of sending Occupant Notification letters to all occupants once an inspection for ACBM has been completed. This notification includes the following general information:

1. That a survey has been performed and has identified areas where ACBM are located in the facility.
2. The condition of the ACBM and actions to be taken.
3. ACBM must be maintained in good condition and shall not be disturbed.
4. Report any damage of ACBM to APM or APC.
5. ACBM will be periodically reinspected and actions will be taken to maintain or remove (if necessary) the ACBM.

#### Asbestos Work Notifications

All facility occupants shall be notified by the APM or APC before work on ACBM will be performed in any area of their facility. Such notification shall describe the work location, work to be performed, the work schedule, and precautions to be used to protect building occupants.

The APM shall file all notices required by federal, state and local regulations prior to the start of any O&M activities that are governed by these regulations.

Federal requirements for notification are set forth in the National Emission Standards for Hazardous Air Pollutants (NESHAP) rules and the EPA Worker Protection Rule.

If needed, an appendix may be added to this document to include notification forms. Remember to include a reference here as well as at the Table of Contents.

**9.6.6 Surveillance and Reinspection.** A visual reinspection of all ACBM shall be conducted at regular intervals by the building owner as part of the O&M program. Combined with ongoing reports of changes in the condition of the ACBM made by service workers, the reinspections shall help ensure that any ACBM damage or deterioration will be detected and corrective action taken.

**Periodic Surveillance.** At least once every 6 months the building owner shall conduct periodic surveillance of all ACBM located within the building occupied or controlled by EPA.

Each person performing periodic surveillance shall be:

- Accredited or certified as an Inspector

**Reinspection.** At least once every 3 years the building owner shall conduct a reinspection of all friable and non-friable known or suspected ACBM.

Each person performing a reinspection shall be:

- Accredited or certified as an inspector.

Periodic review of the Program, and its ongoing SOPs and SMs, is essential to ensure that the objectives are being met. A key feature of the review is a reinspection of all ACBM in the building. Combined with ongoing reports of changes in the condition of the ACBM made by service workers, the reinspection will ensure that any damage or deterioration of the ACBM will be detected and corrective action taken. Additional control measures may be necessary if the ACBM deteriorates.

**9.6.7 Control System.** The building owner shall include in the O&M program a system to monitor and control all work that may occur in the building that could disturb ACBM. The building APM shall be the person designated to manage and administer the required control system.

Under these SOPs and the SMs documents included under this Program, a work practice system is provided for administration and operation of work practices to control any disturbance of ACBM.

Engineering controls to be used on asbestos O&M projects vary based on the type of project being performed. Regulations require certain engineering controls for projects depending upon the amount of work to be performed and anticipated airborne fiber levels during the work. Personal protective equipment shall be used in addition to, and not instead of, engineering controls for asbestos O&M work.

These SOPs adopt the NIBS O&M Work Practices as the Program's SMs. The SMs are divided into three categories based on the type of ACBM encountered:

- 'S' Procedures - for Surfacing materials
- 'T' Procedures - for TSI materials
- 'M' Procedures - for Miscellaneous materials

The introductory material of the SMs document must be reviewed by all asbestos O&M personnel at this facility.

Work permits for work involving ACBM will be integrated into current work processing procedures. The review of work involving ACBM will consist of the following:

1. An initial review to determine whether the facility has been surveyed, and if so, whether it contains ACBM.
2. For facilities with ACBM, survey data and asbestos location drawings, if available, will be reviewed to determine whether the work may disturb ACBM. If insufficient data exists, bulk samples shall be obtained and analyzed, or the material(s) shall be assumed to contain ACBM and treated accordingly.
3. For work that may disturb ACBM, the ACBM project type and work practices will be selected.
4. Where the task is not covered by previously approved standard work practices, the SMs shall make sure that the appropriate work practices and protective measures are used for the job.
5. For all jobs where contact with ACBM is likely, the APM or a designated supervisor qualified by training or experience shall visit the work site when the work begins to see that the job is being performed properly. For lengthy jobs where disturbance of ACBM is intended or likely, periodic inspections shall be made for the duration of the project.
6. Any deviation from standard and approved work practices shall be recorded immediately on this form and the practices shall be immediately corrected *and reported to the APM.*
7. Upon completion of the work, a copy of the evaluation form shall be placed in the permanent asbestos file for the building.

Building owners shall consider using asbestos O&M work control forms similar to those which already may be in use for non-ACBM work in their facilities.

The O&M management system shall also address work conducted by outside contractors. Many building owners contract for a least some custodial and

maintenance services. A building's asbestos work control/permit system shall also cover contract work.

At a minimum, contracts with service trades or abatement companies shall include the following provisions to ensure that the service or abatement workers can and will follow appropriate work practices:

- Proof that the contractor's workers have been properly trained and notified about ACBM in the owner's building and that they are properly trained and accredited to work with ACBM.
- Copies of respiratory protection, medical surveillance, and worker training documentation as required by OSHA, EPA and/or state regulatory agencies.
- Notification to building tenants and visitors that abatement activity is underway.

The NIBS Guidance Manual is used as the model in developing EPA's Asbestos Program and its SMs. The following is a brief outline of topics included in SMs:

- I. Manual Organization
  - II. Asbestos Program Manager General Procedures
  - III. Worker General Procedures
  - IV. Surfacing Materials Work Practices
  - V. Thermal Systems Insulation Work Practices
  - VI. Miscellaneous Materials Work Practices
  - VII. Appendices
- The APM or APC shall review work practices with the workers who will perform the work.
  - Workers shall be notified to consult with the APM or designated person:
    - ♦ If they have any questions during the work.
    - ♦ If any problems occur.
    - ♦ If it appears to the workers that additional precautions might be necessary to safely perform the work.
  - Detailed procedures are given for steps that are common to many of the work practices.
    - ♦ These general procedures are referenced in the work practices and in the APM checklist.

- ♦ The general procedures shall be covered in O&M training related to the use of this manual.
- Not all of the general procedures are used in every work practice.
  - ♦ The work practices and checklists refer the user to applicable general procedures for detailed information on how to perform a certain portion of the work.
  - ♦ Once a user is familiar with the general procedure requirements, it might not be necessary to review the general procedures each time an O&M activity is performed.
  - ♦ However, the general procedures shall be reviewed periodically by the APM to verify that the proper procedures are being followed.



## **Section 10 Recordkeeping**

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Records of all asbestos O&M activities and programs must be retained to comply with Federal requirements. Records to be maintained as a requirement of these SOPs shall include the following:

1. Personal air sampling records, for at least 30 years. A copy of personal air sampling records shall be kept in the worker's medical records. The APM shall also keep a copy for review when selecting work practices. Personal air samples are those collected in the worker's breathing zone during performance of work involving asbestos exposures.
2. Objective air monitoring data used to qualify for exemptions from OSHA's initial monitoring requirements for the duration of the exemption.
3. Medical records for each employee subject to the medical surveillance program for the duration of their employment plus 30 years. Administrative records related to the medical surveillance program shall be retained in the Safety and Health Manager's office.
4. All asbestos O&M personnel training records for one year beyond the last date of each worker's employment.
5. Survey and assessment reports.
6. A copy of this manual.
7. Respiratory Protection Program.
8. Work Permit forms.
9. Surveillance and Reinspection Data.
10. Notifications sent to employees/building occupants/contractors.
11. Records request forms.
12. Fiber release reports.
13. Waste disposal records.
14. Initial/Periodic cleaning forms.
15. O&M Plan acknowledgement forms.
16. Regulations maintained for O&M work.





## **Section 11    Quality Assurance and Quality Control (QA/QC)**

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A QA/QC program for O&M work includes the following primary components:

1.    A regular review of the records by the APM and APC. These records shall be reviewed every three months for completeness, unless the APM and APC mutually agree that a longer interval is satisfactory. Action shall be taken immediately to correct any discrepancies in file documentation or work practices.
2.    The APM and APC shall review O&M activities in progress as often as necessary (a minimum of once a month is suggested). Reviews shall be conducted as necessary for the APM and APC to remain familiar with the ability of the workers to perform work in accordance with the work practices. State or local requirements may dictate the amount of oversight required.
3.    A review of a summary of work performed since the last review. A review of several work requests shall be performed by a trained person that does not routinely process work requests to verify that survey data is being properly used, and that additional data is being obtained when needed.



## Section 12 References

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United States Environmental Protection Agency, Pesticides and Toxic Substances (TS-799), Document 20T-2003, July, 1990, Managing Asbestos In Place. A Building Owner's Guide to operations and Maintenance Programs for Asbestos-Containing Materials. Also known as the "EPA Green Book".

United States Environmental Protection Agency, Office of Pesticides and Toxic Substances, Document EPA 560/5-85-024, June, 1985, Guidance for Controlling Asbestos-Containing Materials in Buildings. Also known as the "EPA Purple Book".

United States Environmental Protection Agency, Document EPA 560 5 85 030a, October, 1985. Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials. Also known as the "EPA Pink Book".

Asbestos Hazard Emergency Response Act (AHERA), Federal Register (40 CFR Part 763), October 30, 1987.

National Institute of Building Sciences, Guidance Manual Asbestos Operations and Maintenance Work Practices, September, 1992.

EPA Health and Safety Guidelines for EPA Inspectors, (Revised), March, 1991.

EPA Policy and Program for the Management of Asbestos-Containing Building Materials at EPA Facilities (Draft), July, 1994.

EPA Standard Methods for Conducting Asbestos O&M Work Practices (Draft), July, 1994.

American National Standards Institute/American Society for Quality Control - ANSI/ASQC E4.



## **Section 13 Definitions**

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**Abatement** - The general term used to define any of the following response actions: operations and maintenance, repair, encapsulation, enclosure/encasement, or removal.

**Accessible** - When referring to ACM means that the material is subject to disturbance by school building occupants or custodial or maintenance personnel in the course of their normal activities.

**Accredited or Accreditation** - When referring to a person or laboratory means that such person or laboratory is accredited in accordance with section 206 of Title II of the Act.

**Adequately Wet** - Adequately Wet means sufficiently mixed or penetrated with liquid to prevent the release of particulate. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

**Agency Facility** - Property owned or substantially controlled by EPA. Property that is rented or leased by the Agency, or that is loaned to the Agency, is considered to be substantially controlled by the EPA.

**Agency Safety, Health, and Environmental Management Program Managers (hereafter referred to as "SHEMP managers")** - Managers who have the technical and managerial skills and have the authority and responsibility to represent the authority of the AAs and RAs in the effective implementation, management and administration of safety, health and environmental management programs, including development of O&M Plans.

**Air Erosion** - The passage of air over friable ACBM which may result in the release of asbestos fibers.

**Air Monitoring** - The process of measuring the fiber content of a specific volume of air.

**Amended Water** - Water to which a surfactant has been added for use in wetting ACBM to control asbestos fibers.

**Asbestos** - The asbestiform varieties of: Chrysotile (serpentine), crocidolite (riebeckite); amosite (cummingtonite/grunerite); anthophyllite; tremolite; and actinolite.

**Asbestos-Containing Materials (ACM)** - Any material or product which contains more than 1 percent asbestos.

**Asbestos-Containing Building Materials (ACBM)** - Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members of other parts of a building.

**Asbestos-Containing Waste Material** - Mill tailings or any waste that contains commercial asbestos and is generated by a regulated source. This term includes filters from control

devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing waste and materials contaminated with asbestos including disposable equipment and clothing.

**Asbestos Debris** - Pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACBM.

**Asbestos Hazard Emergency Response Act (AHERA)** - An EPA regulation published in the October 30, 1987 Federal Register (40 CFR Part 763) covering asbestos-containing materials in schools. AHERA requires local education agencies to identify ACBM in their school buildings, develop an asbestos management plan and implement this plan. An O&M program is one permitted response action, where appropriate.

**Asbestos O&M Work** - Cleaning, maintenance, repair, or renovation work involving asbestos containing materials where the intent of the activity is not to remove asbestos. NESHAP requires that the owner or operator of a demolition or renovation activity conduct a thorough inspection of the affected facility or part of the facility where demolition or renovation will occur.

**Asbestos Program Coordinator (APC)** - An EPA employee (worker) or designated representative who supervises aspects of the building asbestos management and control program. (For leases through GSA, GSA may also have a representative who coordinates EPA and other federal government tenants.)

**Asbestos Program Manager (APM)** - A building owner or designated representative who supervises all aspects of the facility asbestos management and control program. (For EPA owned facilities, will most likely be an EPA worker.)

**Breathing Zone** - A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

**Bridging Encapsulant** - An encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

**Critical Barrier** - One or more layers of polyethylene taped in place over openings into a work area. Openings to be covered include doors, windows, diffusers, and any other opening that could allow outside air into a work area.

**Critical Work** - Activities deemed essential by an EPA Division Director, or higher-level EPA manager, that (1) must be conducted in order to protect workers from hazards likely to cause serious injury or illness; or (2) must be undertaken to prevent damage to property or facilities, which would otherwise result in a sustained impairment of Agency strategic mission or essential capability for which no comparable and acceptable alternate exists.

**Damaged Friable Miscellaneous ACM** - Friable miscellaneous ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate

(adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars, or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

**Damaged Friable Surfacing ACM** - Friable surfacing ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or which has delaminated such that its bond to the substrate (adhesion) is inadequate, or which, for any other reason, lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars, or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

**Damaged or Significantly Damaged Thermal System Insulation ACM** - Thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water-stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges, or other signs of physical injury to ACM; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris originating from the ACBM in question may also indicate damage.

**Delamination** - Separation of one layer from another.

**Disposal Bag** - Properly labeled 6 mil (0.15 mm) thick (or thicker) leak-tight plastic bags used for transporting asbestos waste from work and to disposal site.

**Drop Cloth** - A layer of polyethylene on the floor of a work area to protect the floor below from contamination and to facilitate the clean-up of dust or debris generated during the work.

**Employee Work Activities** - Official work performed by EPA employees in EPA controlled facilities, in facilities of private or other public employers, or at temporary work sites, e.g., hazardous waste sites, spill sites, and other environmental investigation sites.

**Encapsulant** - A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

**Encapsulation** - The treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating

**Enclosure** - The construction of an air-tight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air.

**EPA** - U.S. Environmental Protection Agency.

**Establishment** - A single location where Agency activities are conducted, but which receives administrative assistance and support from a higher level or another location.

**Excursion Limit (EL)** - The OSHA term used to define a maximum airborne concentration of asbestos in fibers per cubic centimeter as averaged over a sampling period of thirty minutes.

**Fiber Release Episode** - Any uncontrolled or unintentional disturbance of ACBM resulting in visible emission.

**Friable** - Material, that when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

**Friable Asbestos** - See "Regulated ACBM".

**Functional Space** - A room, group of rooms, or homogeneous area (including crawl spaces or the space between a dropped ceiling and the floor or roof deck above), designated by a person accredited to prepare management plans, design abatement projects, or conduct response actions.

**Glovebag** - A polyethylene or polyvinyl chloride bag-like enclosure affixed around an asbestos-containing source (most often, TSI) so that the material may be removed while minimizing release of airborne fibers to the surrounding atmosphere.

**HEPA Filter** - High-Efficiency Particulate Air Filter. Such filters are rated to trap at least 99.97% of all particles 0.3 microns in diameter or larger.

**Homogeneous Area** - An area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture.

**Major Fiber Release Episode** - The falling or dislodging of more than 3 square or linear feet of friable ACBM.

**Medical Surveillance** - A periodic comprehensive review of a worker's health status. The required elements of an acceptable medical surveillance program are listed in the Occupational Safety and Health Administration standards for asbestos.

**Mini-Enclosure** - An enclosure constructed of polyethylene sheeting used for small scale, short duration asbestos maintenance or renovation work. Mini-enclosures can be small enough to restrict entry to the asbestos work area to one worker. Appendix G to OSHA



regulation 29 CFR 1926.58 discusses mini-enclosures and recommends that a change room be constructed contiguous to the mini-enclosure.

**Minor Fiber Release Episode** - The falling or dislodging of 3 square or linear feet or less of friable ACBM.

**Minor Work** - Work disturbing ACBM that does not affect quantities of ACBM in excess of the regulated small scale, short duration project limit.

**Miscellaneous ACBM** - Interior asbestos-containing building material on structural components, structural members or fixtures, such as floor and ceiling tiles; does not include surfacing material or thermal system insulation.

**Negative Pressure System** - A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.

**Negative Pressure Respirator** - A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

**NESHAP** - National Emission Standard for Hazardous Air Pollutants - EPA Rules under the Clean Air Act.

**NIOSH** - The National Institute for Occupational Safety and Health, which was established by the Occupational Safety and Health Act of 1970. Primary functions of NIOSH are to conduct research, issue technical information, and certify respirators.

**Non-friable** - Material in a facility which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.

**Officer-in-Charge of Reporting Unit an Establishment or a Workplace** - The senior management official responsible for implementing safety, health, and environmental programs, including O&M Plans, at that designated location. In the Regions, it is the RA. In the research laboratories, it is the laboratory director.

**Operations & Maintenance (O&M) Program** - A program of work practices to maintain friable ACBM in good condition, ensure clean up of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage.

**Operations and Maintenance Plan** - A formulated plan of training, cleaning, work practices and surveillance to maintain ACBM in good condition.

**"Worker(s)"** includes full-time, part-time, temporary, and permanent EPA employee (s); federal, state or local government employee(s) assigned or detailed to the EPA;

enrollee(s) in the EPA's Senior Environmental in-school program participant(s); intern(s) and fellow(s) assigned to the EPA; and others who are designated on a case-by case basis by the Director, SHEMD.

**Occupied Area** - An area where workers are present and are performing their normal activities intended for the area (such as in a typical office area from 8:00 to 5:00 p.m., Monday through Friday).

**OSHA** - Occupational Health & Safety Administration.

**Penetrating Encapsulant** - An encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

**Personal Air Samples** - An air sample taken with a sampling pump directly attached to the worker with the collecting filter and cassette placed in the worker's breathing zone. These samples are required by the OSHA asbestos standards and the EPA Worker Protection Rule.

**Plenum** - Any space to convey air in a building or structure. The space above a suspended ceiling is often used as an air plenum. This term is also used in the work practices to refer to spaces above a ceiling not used to convey air.

**Potential Damage** - Circumstances in which: (1) friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities; and (2) there are indications that there is a reasonable likelihood that the material or its covering will become damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.

**Potential Significant Damage** - Circumstances in which: (1) friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities; (2) there are indications that there is a reasonable likelihood that the material or its covering will become significantly damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage; and the material is subject to major or continuing disturbance, due to factors including, but not limited to, accessibility or, under certain circumstances, vibration, or air erosion.

**Protection Factor** - The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

**Preventive Measures** - Actions taken to reduce disturbance of ACBM or otherwise eliminate the reasonable likelihood of the material's becoming damaged or significantly damaged.

**Regulated ACBM (RACBM)** - As defined by NESHAP in the November 20, 1990 Federal Register, regulated asbestos-containing material (RACBM) means (a) Friable asbestos material; (b) Category I nonfriable ACBM that have become friable; (c) Category I nonfriable ACBM that will be or have been subjected to sanding, grinding, cutting, or abrading; or (d) Category II nonfriable ACBM that have a high probability of becoming or have become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

**Friable asbestos material** means any material containing more than 1 percent asbestos as determined using the method specified under AHERA (40 CFR Part 763, Subpart F, Appendix A, section 1, Polarized Light Microscopy) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

**Category I nonfriable asbestos-containing material (ACBM)** means asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified under AHERA.

**Category II nonfriable ACBM** means any material, excluding Category I nonfriable ACBM containing more than 1 percent asbestos as determined using the methods specified under AHERA, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

**Remove** - For Operations and Maintenance work on ACBM, "remove" refers to the removal of ACBM as needed to perform a maintenance or repair O&M activity.

**Removal** - The taking out or the stripping of substantially all ACBM from a damaged area, a functional space, or a homogenous area.

**Removal Encapsulant** - A penetrating encapsulant specifically designed to minimize fiber release during removal of asbestos-containing materials rather than for in situ encapsulation.

**Repair** - Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

**Reporting Unit** - A location or group of locations where Agency business is conducted and which has the same line management authority for laboratories and field units at other locations. This would include a complete region, an ORD or program laboratory, RTP, etc.

**Respirator** - A device designed to protect the wearer from the inhalation of harmful atmospheres.

**Response Action** - A method, including removal, encapsulation, enclosure, repair, operations and maintenance, that protects human health and the environment from friable ACBM.

**Routine Maintenance Area** - An area, such as a boiler room or mechanical room, that is not normally frequented and in which maintenance employees or contract workers regularly conduct maintenance activities.

**Significantly Damaged Friable Miscellaneous ACM** - Damaged friable miscellaneous ACM where the damage is extensive and severe.

**Significantly Damaged Friable Surfacing ACM** - Damaged friable surfacing ACM in a functional space where the damage is extensive and severe.

**Surfacing ACBM** - Asbestos-containing material that is sprayed-on, troweled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural member, or other materials on surfaces for acoustical, fireproofing, or other purposes.

**Surfactant** - A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

**Temporary Barriers** - One or more layers of 6 mil polyethylene installed to isolate a work area from other portions of a facility.

**Thermal System Insulation (TSI)** - Thermal system insulation - asbestos-containing material applied to pipes, fittings, boilers, breeching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

**Time Weighted Average (TWA)** - In air sampling, this refers to the average air concentration of contaminants during a particular sampling period.

**Work Area** - The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel.

**Workplace** - A physical location where the Agency's work or operations are performed. A workplace means a distinctly separate activity housed within an establishment or which is geographically close to and shares O&M Plan responsibility of an establishment.

**Workplace Control Level** - An exposure level which is intended to limit the risk to an individual from asbestos fibers. This indoor level at EPA occupied or controlled facilities is 70 structures per millimeter squared ( $70 \text{ s/mm}^2$ ).

**Work Practices** - Procedures designed to be followed to avoid or minimize fiber release during activities affecting ACBM.



## **Section 14 Appendices**

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### **14.1 Appendix A: Standard Forms**

1. **Inspection Summary Sheet:** Use to summarize ACM inspection results for each homogenous area.
2. **Bulk Sample Data Form:** Use to summarize sample data for all homogenous areas from a bulk sampling inspection and to record laboratory results following analysis of samples.
3. **Surfacing Assessment Form (2 pgs.):** Use during an inspection for recording data on surfacing ACM.
4. **TSI Assessment Form:** Use during an inspection for recording data on thermal system insulation ACM.
5. **Miscellaneous Assessment Form:** Use during an inspection for recording data on miscellaneous ACM.
6. **Master List of Training Information:** Summarizes training information for all employees.
7. **Verification of Employee Training:** Form to be used for each employee to record training courses attended, respirator program participation, and medical surveillance program participation.
8. **Sample Information Letter to Tenants/Occupants:** Sample letter to be used to notify tenants and occupants of planned renovation work, inspections for ACM, and the establishment of the O&M Plan.
9. **Occupant Notification Form:** Use to record information and dates related to notifications sent to building occupants, tenants, and employees.
10. **Basic and Initial Medical Questionnaire (OSHA) (11 pgs.):** Standard OSHA questionnaire for an initial medical surveillance examination.
11. **Periodic Medical Questionnaire (3 pgs.):** Standard OSHA questionnaire for annual physical examinations for employees enrolled in a medical surveillance program.
12. **Reinspection Form:** Use to record information for each homogenous area during an ACM reinspection.
13. **Work Control Application Form:** Use to request approval to perform O&M work that may involve asbestos.

14. **O&M Activity Form (2 pgs.):** Use to record information on work practices used for work on ACM.
15. **Records Request Form:** Use to request information in O&M records from Asbestos Program Manager.
16. **Air Sample Form:** Use to record data and results of air samples obtained during O&M activities.
17. **Fiber Release Episode Report:** Form for recording response activities related to a fiber release episode.
18. **Waste Tracking Form and Waste Disposal Record:** Use to record information related to waste disposal, including type of containers, notifications, disposal site, and chain of custody.
19. **Initial/Periodic Cleaning Form:** Use to record special cleaning work information and work practices.
20. **Contractor's Acknowledgment Form:** Form to be completed by contractors certifying that they will comply with the Policy and Standard Operating Practices.
21. **Clearance Inspection Checklist:** Form for recording information on inspections and clearance sampling conducted at the completion of work on ACM.
22. **NESHAP Notification of Demolition and Renovation Form (2 pgs.):** NESHAP required form to be submitted 10 working days in advance of any work involving regulated ACM that will be stripped, dislodged, cut, drilled, or similarly disturbed.
23. **NESHAP Waste Shipment Record (3 pgs.):** Form required to document asbestos-containing waste that is transported off a facility site.

**BUILDING INSPECTION SUMMARY SHEET**

Building: \_\_\_\_\_ GSA Bldg.No.: \_\_\_\_\_

Address: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_

Area: \_\_\_\_\_

Homogeneous Area No.: \_\_\_\_\_ Functional Space No. \_\_\_\_\_

Category of ACM: \_\_\_\_\_ Surfacing \_\_\_\_\_ Thermal System Insulation \_\_\_\_\_ Miscellaneous

Type of Asbestos: \_\_\_\_\_ Chrysotile \_\_\_\_\_ Amosite \_\_\_\_\_ Other \_\_\_\_\_

Percent Asbestos: \_\_\_\_\_

Amount of ACM: \_\_\_\_\_

Friable: \_\_\_\_\_ Yes \_\_\_\_\_ No

Material Assessment: \_\_\_\_\_ No Damage \_\_\_\_\_ Damaged \_\_\_\_\_ Other \_\_\_\_\_

Reason for Damage: \_\_\_\_\_

Area: \_\_\_\_\_

Homogeneous Area No.: \_\_\_\_\_ Functional Space No. \_\_\_\_\_

Category of ACM: \_\_\_\_\_ Surfacing \_\_\_\_\_ Thermal System Insulation \_\_\_\_\_ Miscellaneous

Type of Asbestos: \_\_\_\_\_ Chrysotile \_\_\_\_\_ Amosite \_\_\_\_\_ Other \_\_\_\_\_

Percent Asbestos: \_\_\_\_\_

Amount of ACM: \_\_\_\_\_

Friable: \_\_\_\_\_ Yes \_\_\_\_\_ No

Material Assessment: \_\_\_\_\_ No Damage \_\_\_\_\_ Damaged \_\_\_\_\_ Other \_\_\_\_\_

Reason for Damage: \_\_\_\_\_

Area: \_\_\_\_\_

Homogeneous Area No.: \_\_\_\_\_ Functional Space No. \_\_\_\_\_

Category of ACM: \_\_\_\_\_ Surfacing \_\_\_\_\_ Thermal System Insulation \_\_\_\_\_ Miscellaneous

Type of Asbestos: \_\_\_\_\_ Chrysotile \_\_\_\_\_ Amosite \_\_\_\_\_ Other \_\_\_\_\_

Percent Asbestos: \_\_\_\_\_

Amount of ACM: \_\_\_\_\_

Friable: \_\_\_\_\_ Yes \_\_\_\_\_ No

Material Assessment: \_\_\_\_\_ No Damage \_\_\_\_\_ Damaged \_\_\_\_\_ Other \_\_\_\_\_

Reason for Damage: \_\_\_\_\_



**BULK SAMPLE**

**Inspector:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

Date: \_\_\_\_\_

[illegible]

**Surfacing Asbestos-Containing Material  
Assessment Form**

Building: \_\_\_\_\_ GSA Bldg. No.: \_\_\_\_\_

Address: \_\_\_\_\_

Area: \_\_\_\_\_ Date of Assessment: \_\_\_\_\_

Location of Surfacing ACM: \_\_\_\_\_ Ceiling \_\_\_\_\_ Wall \_\_\_\_\_ Other (specify) \_\_\_\_\_

Homogeneous Area No.: \_\_\_\_\_ Functional Space No.: \_\_\_\_\_

(Note: A separate assessment form will be completed for each type of surfacing ACM.)

Type of Surfacing ACM: \_\_\_\_\_ Fireproofing \_\_\_\_\_ Thermal Insulation  
\_\_\_\_\_ Acoustical Plaster \_\_\_\_\_ Decoration  
\_\_\_\_\_ Other (specify) \_\_\_\_\_

Type of Ceiling: \_\_\_\_\_ Concrete \_\_\_\_\_ 3-coat Plaster Ceiling  
(if applicable) \_\_\_\_\_ Suspended Metal Lath \_\_\_\_\_ Concrete Joists/Beams  
\_\_\_\_\_ Tile \_\_\_\_\_ Suspended Lay-in Panels  
\_\_\_\_\_ Metal Deck \_\_\_\_\_ Corrugated Steel  
\_\_\_\_\_ Steel Beam or Bar Joists \_\_\_\_\_ Other (specify) \_\_\_\_\_

Ceiling Shape: \_\_\_\_\_ Flat \_\_\_\_\_ Dome \_\_\_\_\_ Folded Plate  
(if applicable) \_\_\_\_\_ Barrel \_\_\_\_\_ Other (specify) \_\_\_\_\_

Type of Coated Wall: \_\_\_\_\_ Smooth Concrete \_\_\_\_\_ Thermal Insulation  
(if applicable) \_\_\_\_\_ Masonry \_\_\_\_\_ Wall or Ceiling Board  
\_\_\_\_\_ Other (specify) \_\_\_\_\_

Total Amount of Material: \_\_\_\_\_ Ceiling Height: \_\_\_\_\_

Estimated Thickness: \_\_\_\_\_ Is Thickness Uniform: \_\_\_ Yes \_\_\_ No  
If no, give range of thickness: \_\_\_\_\_

Asbestos Known? \_\_\_\_\_ Type: \_\_\_\_\_ Percentage: \_\_\_\_\_ Asbestos Assumed? \_\_\_\_\_

Amount of Damaged Material: \_\_\_\_\_

**Surfacing Assessment Form**

**Page Two**

Description of Coating: \_\_\_\_\_ Fibrous \_\_\_\_\_ Granular/Cementitious  
\_\_\_\_\_ Concrete-Like

Coating Debris on Floor/Furniture/Work Surfaces: \_\_\_\_\_ Yes \_\_\_\_\_ No

Is coating subject to disturbance by curtains, expandable partitions, etc. \_\_\_\_\_ Yes \_\_\_\_\_ No

Type of Lighting: \_\_\_\_\_ Surface Mounted \_\_\_\_\_ Suspended \_\_\_\_\_ Recessed

Type of Heating/Cooling System: \_\_\_\_\_

What is above the room being evaluated: \_\_\_\_\_

**Current Condition of ACM:**

Physical Damage/Deterioration: \_\_\_\_\_ Major \_\_\_\_\_ Minor \_\_\_\_\_ None

Water Damage/Deterioration: \_\_\_\_\_ Major \_\_\_\_\_ Minor \_\_\_\_\_ None

**Potential for Future Damage, Disturbance, or Erosion:**

Accessibility: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Activity & Movement: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Change in Building Use: \_\_\_\_\_ Scheduled \_\_\_\_\_ Possible \_\_\_\_\_ None

Vibration: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Air Plenum: \_\_\_\_\_ Yes \_\_\_\_\_ No

Friability: \_\_\_\_\_ High \_\_\_\_\_ Low

Amount of ACM Exposed: \_\_\_\_\_ Greater Than 10%

\_\_\_\_\_ 10% or Less

\_\_\_\_\_ Not Exposed

Comments: \_\_\_\_\_

Assessor: \_\_\_\_\_ Date Report Completed: \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Facility Asbestos Control Manager)

**Thermal System Insulation (TSI)  
Assessment Form**

Building: \_\_\_\_\_ GSA Bldg. No.: \_\_\_\_\_

Address: \_\_\_\_\_

Area: \_\_\_\_\_ Date of Assessment: \_\_\_\_\_

Homogeneous Area No.: \_\_\_\_\_ Functional Space No.: \_\_\_\_\_

(Note: A separate assessment form will be completed for each type of TSI ACM.)

**Type of Pipe and Boiler Insulation (ACM):**

Duct Insulation	_____	Duct Wrapping	_____	Transite Board	_____
Boiler Lagging	_____	Tank Insulation	_____	Elbow Joints (No.):	_____
Pipe Insulation:	_____	Water Pipe	_____	Steam Pipe	_____
Area Around:	_____	Valves	_____	Flanges	_____
			_____	Other	_____

Total Amount ACM: \_\_\_\_\_ Linear Feet \_\_\_\_\_ Square Feet \_\_\_\_\_

Area of Damaged ACM: \_\_\_\_\_ Linear Feet \_\_\_\_\_ Square Feet \_\_\_\_\_

Asbestos Known? \_\_\_\_\_ Type: \_\_\_\_\_ Percentage: \_\_\_\_\_ Asbestos Assumed? \_\_\_\_\_

Location Specifics:

_____ Air Handler Room	_____ Boiler Room
_____ Mechanical Room	_____ Air Plenum
_____ Enclosed Space	_____ Stairwell
_____ Garage	_____ Peripheral HVAC
_____ Other (specify) _____	

**Condition of ACM:**

Physical Damage/Deterioration: \_\_\_\_\_ Major \_\_\_\_\_ Minor \_\_\_\_\_ None

Water Damage/Deterioration: \_\_\_\_\_ Major \_\_\_\_\_ Minor \_\_\_\_\_ None

Friability of Damaged Area: \_\_\_\_\_ High \_\_\_\_\_ Low

**Potential for Future Damage, Disturbance, or Erosion:**

Accessibility: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Activity & Movement: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Change in Building Use: \_\_\_\_\_ Scheduled \_\_\_\_\_ Possible \_\_\_\_\_ None

Vibration: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Air Plenum: \_\_\_\_\_ Yes \_\_\_\_\_ No

Comments: \_\_\_\_\_

Assessor: \_\_\_\_\_ Date Report Completed: \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Facility Asbestos Control Manager)

# Miscellaneous Asbestos-Containing Material Assessment Form

Building: \_\_\_\_\_ GSA Bldg. No.: \_\_\_\_\_

Address: \_\_\_\_\_

Area: \_\_\_\_\_ Date of Assessment: \_\_\_\_\_

Homogeneous Area No.: \_\_\_\_\_ Functional Space No.: \_\_\_\_\_

(Note: A separate assessment form will be completed for each type of miscellaneous ACM)

Type of Miscellaneous ACM: \_\_\_\_\_ Floor Tile \_\_\_\_\_ Ceiling Tile  
(Attached separate sheets if more than one type.) \_\_\_\_\_ Mastic \_\_\_\_\_ Roofing Felt  
\_\_\_\_\_ Extrusion Panels \_\_\_\_\_ Shingles  
\_\_\_\_\_ Clapboard \_\_\_\_\_ Millboard  
\_\_\_\_\_ Asbestos/Cement Piping \_\_\_\_\_ Wallcovering  
\_\_\_\_\_ Sheet Goods \_\_\_\_\_ Other \_\_\_\_\_  
\_\_\_\_\_ Paints & Coatings \_\_\_\_\_

Total Amount ACM: \_\_\_\_\_ Linear Feet \_\_\_\_\_ Square Feet \_\_\_\_\_

Area of Damaged ACM: \_\_\_\_\_ Linear Feet \_\_\_\_\_ Square Feet \_\_\_\_\_

Asbestos Known? \_\_\_\_\_ Type: \_\_\_\_\_ Percentage: \_\_\_\_\_ Asbestos Assumed? \_\_\_\_\_

Location: \_\_\_\_\_ Office \_\_\_\_\_ Mechanical Area \_\_\_\_\_ Lobby  
\_\_\_\_\_ Conference Room \_\_\_\_\_ Hallway \_\_\_\_\_ Cafeteria  
\_\_\_\_\_ Garage \_\_\_\_\_ Roof  
\_\_\_\_\_ Other (specify) \_\_\_\_\_

## Condition of ACM:

Physical Damage/Deterioration: \_\_\_\_\_ Major \_\_\_\_\_ Minor \_\_\_\_\_ None

Water Damage/Deterioration: \_\_\_\_\_ Major \_\_\_\_\_ Minor \_\_\_\_\_ None

Friability of Damaged Area: \_\_\_\_\_ High \_\_\_\_\_ Low

## Potential for Future Damage, Disturbance, or Erosion:

Accessibility: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Activity & Movement: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Change in Building Use: \_\_\_\_\_ Scheduled \_\_\_\_\_ Possible \_\_\_\_\_ None

Vibration: \_\_\_\_\_ High \_\_\_\_\_ Moderate \_\_\_\_\_ Low

Air Plenum: \_\_\_\_\_ Yes \_\_\_\_\_ No

Comments: \_\_\_\_\_

Assessor: \_\_\_\_\_

Date Report Completed: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

(Facility Asbestos Control Manager)

## MASTER LIST OF TRAINING INFORMATION

[illegible]

## Verification Of Employee Training

Employee Name \_\_\_\_\_

Social Security # \_\_\_\_\_

Position \_\_\_\_\_

Employee: \_\_\_\_\_ GSA \_\_\_\_\_ Non-GSA

Training Provider \_\_\_\_\_

Address \_\_\_\_\_

Training Course Title \_\_\_\_\_

Date of Course \_\_\_\_\_

Length of Course (Hours) \_\_\_\_\_

Was This Course: \_\_\_\_\_ Initial Training \_\_\_\_\_ Update Training

Does Course Have Full Approval of U.S. Environmental Protection Agency? \_\_\_\_

Does Employee Participate in Respirator Program? \_\_\_\_\_ Yes \_\_\_\_\_ No

Does Employee Participate in Medical Surveillance Program? \_\_\_\_ Yes \_\_\_\_ No

Attach Copy of Certificate Indicating Successful Completion of Training (including appropriate examination).

## Sample Information Letter to Tenants/Occupants

MEMORANDUM FOR: Building Tenant Agencies/Occupants

FROM:

Facility Asbestos Program Manager

SUBJECT: Notification of the Presence of Asbestos-Containing Material  
in (Facility Name).

As communicated to building tenant agencies and occupants in a memorandum dated \_\_\_\_\_, during scheduled renovation of \_\_\_\_\_ within the \_\_\_\_\_ building, asbestos-containing material was identified in \_\_\_\_\_. The entire facility was inspected for the presence of asbestos-containing materials by \_\_\_\_\_.

Upon receipt of the survey results, consultation was entered into with experts in the field of asbestos detection and control to develop a course of action specifically designed to protect the health and safety of building occupants. An asbestos-related Operations and Maintenance (O&M) program was established to provide an effective means for dealing with the asbestos situation. The objectives of the O&M plan are to:

- establish a program of work practices to maintain asbestos-containing materials in good condition
- ensure the safe clean-up of asbestos fibers previously released
- prevent release of asbestos fibers by minimizing disturbance and damage
- develop an in-house asbestos response team to effectively handle emergency situation.

Through the establishment of a trained, in-house asbestos response team and use of experienced outside asbestos abatement contractors, the asbestos situation within this facility can be controlled in a manner which will be safe to the health of the building occupants. Of course, the help and cooperation of all tenant agencies and occupants will be needed.

This office will implement a policy of providing informational updates on any activity which will involve the intentional disturbance of asbestos-containing material during building operations, emergency response to asbestos fiber releases, and precautions and procedures designed to ensure the health and safety of the building occupants. In addition, information can be gained directly by contacting this office at \_\_\_\_\_.



**TENANT/EMPLOYEE/BUILDING OCCUPANT NOTIFICATION FORM**

Building: \_\_\_\_\_

GSA Building No.: \_\_\_\_\_

Address: \_\_\_\_\_

**TENANT AGENCIES**

\_\_\_\_\_ No tenant agencies in this facility

Tenant agencies notified of:

_____ presence of asbestos-containing materials	Date _____
_____ implementation of O&M program	Date _____
_____ ACM abatement plans	Date _____
_____ air monitoring results	Date _____

Attach list of tenant agencies notified.

Attach documentation that tenant agency received notification (optional).

**EMPLOYEES/OCCUPANTS**

Notification of all facility employees of \_\_\_\_\_ presence of ACM  
\_\_\_\_\_ implementation of O&M program  
\_\_\_\_\_ ACM abatement plans  
\_\_\_\_\_ air monitoring results

Type of notification (check all that apply and list dates)

_____ Letter	Date: _____
_____ Posted notice	Date: _____
_____ Newsletter	Date: _____
_____ Public meeting	Date: _____
_____ Awareness seminar	Date: _____

**GSA NOTIFICATIONS**

\_\_\_\_\_ Notification to GSA Regional office; Mail Code: \_\_\_\_\_

\_\_\_\_\_ Notification to GSA Field Office; Mail Code: \_\_\_\_\_

Sent by: \_\_\_\_\_

Office: \_\_\_\_\_

Phone: \_\_\_\_\_

Date: \_\_\_\_\_

**BASIC EXAMINATION FOR ASBESTOS WORKERS**

**COMPANY:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**APPLICANT NAME:** \_\_\_\_\_

**SS#:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**DATE OF BIRTH:** \_\_\_\_\_

**MEDICATIONS:**

**KNOWN DRUG ALLERGIES:**

**BROKEN BONES:**

**SURGERY:**

**DOES PATIENT WEAR GLASSES OR CONTACTS:**

**DOES PATIENT HAVE KNOWN PROBLEMS REGARDING HEIGHTS OR  
CONFINED SPACES:**

**HAS PATIENT EVER HAD PROBLEM WITH EARS:**

**DOES PATIENT SMOKE:** \_\_\_\_\_ **HOW MUCH** \_\_\_\_\_

**CARDIO-PULMONARY EXAMINATION**

1. **BLOOD PRESSURE:**    **SYSTOLIC** \_\_\_\_\_ **DIASTOLIC** \_\_\_\_\_ **PULSE** \_\_\_\_\_

2. **HEART:**    **MURMURS**

**RATE**

**RHYTHM**

**ENLARGEMENT**

**HEIGHT** \_\_\_\_\_ **WEIGHT** \_\_\_\_\_

3. **LUNGS:**

4. **PULMONARY FUNCTION:**    **Within Normal Limit** \_\_\_\_\_

**Outside Normal Limits** \_\_\_\_\_ **(copy attached)**

5. **PA CHEST X-RAY:** **Within Normal Limits** \_\_\_\_\_ **Outside Normal Limits** \_\_\_\_\_

6. **RECOMMENDATIONS:**

**It is my opinion that the above named patient is is not medically qualified to  
wear a respirator in the performance of his/her job:**

\_\_\_\_\_

## Part 1

## INITIAL MEDICAL QUESTIONNAIRE

1. Name \_\_\_\_\_
2. Social Security # \_\_\_\_\_  
1 2 3 4 5 6 7 8 9
3. CLOCK NUMBER \_\_\_\_\_  
10 11 12 13 14 15
4. PRESENT OCCUPATION \_\_\_\_\_
5. PLANT \_\_\_\_\_
6. ADDRESS \_\_\_\_\_
7. \_\_\_\_\_  
(Zip Code)
8. TELEPHONE NUMBER \_\_\_\_\_
9. INTERVIEWER \_\_\_\_\_
10. Date \_\_\_\_\_  
16 17 18 19 20 21
11. Date of Birth \_\_\_\_\_  
22 23 24 25 26 27
12. Place of Birth \_\_\_\_\_
13. Sex  
1. Male \_\_\_\_\_  
2. Female \_\_\_\_\_
14. What is your marital status?  
1. Single \_\_\_\_\_ 4. Separated/ Divorced \_\_\_\_\_  
2. Married \_\_\_\_\_  
3. Widowed \_\_\_\_\_
15. Race  
1. White \_\_\_\_\_ 4. Hispanic \_\_\_\_\_  
2. Black \_\_\_\_\_ 5. Indian \_\_\_\_\_  
3. Asian \_\_\_\_\_ 6. Other \_\_\_\_\_
16. What is the highest grade completed in school? \_\_\_\_\_  
(For example, 12 years is completion of high school)

## OCCUPATIONAL HISTORY

- 17 A. Have you ever worked full time 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
(30 hours per week or more) for  
6 months or more?

IF YES TO 17A:

- B. Have you ever worked for a year 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
or more in any dusty job? 3. Does Not Apply \_\_\_\_\_

Specify job/industry \_\_\_\_\_ Total Years Worked \_\_\_\_\_

Was dust exposure: 1. Mild \_\_\_\_\_ 2. Moderate \_\_\_\_\_ 3. Severe \_\_\_\_\_

- C. Have you ever been exposed to gas or 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
chemical fumes in your work?  
Specify job/industry \_\_\_\_\_ Total Years Worked \_\_\_\_\_

Was exposure: 1. Mild \_\_\_\_\_ 2. Moderate \_\_\_\_\_ 3. Severe \_\_\_\_\_

- D. What has been your usual occupation or job — the one you have worked at the  
longest?

1. Job occupation \_\_\_\_\_

2. Number of years employed in this occupation \_\_\_\_\_

3. Position/job title \_\_\_\_\_

4. Business, field or industry \_\_\_\_\_

(Record on lines the years in which you have worked in any of these industries, e.g.,  
1960-1969)

Have you ever worked:

	YES	NO
E. In a mine? . . . . .	_____	_____
F. In a quarry? . . . . .	_____	_____
G. In a foundry? . . . . .	_____	_____
H. In pottery? . . . . .	_____	_____
I. In a cotton, flax, or hemp mill? . . . . .	_____	_____
J. With asbestos? . . . . .	_____	_____

**18. PAST MEDICAL HISTORY**

	YES	NO
A. Do you consider yourself to be in good health?	_____	_____
If "NO" state reason _____		
B. Have you any defect of vision? . . . . .	_____	_____
If "YES" state nature of defect _____		
C. Have you any hearing defect?. . . . .	_____	_____
If "YES" state nature of defect _____		
D. Are you suffering from or have you ever suffered from:		
a. Epilepsy (or fits, seizures, convulsions?)	_____	_____
b. Rheumatic fever?	_____	_____
c. Kidney disease?	_____	_____
d. Bladder disease?	_____	_____
e. Diabetes?	_____	_____
f. Jaundice?	_____	_____

**19. CHEST COLDS AND CHEST ILLNESSES**

19	<b>A.</b> If you get a cold, does it <u>usually</u> go to your chest? (Usually means more than 1/2 the time)	1. Yes _____ 3. Don't get colds _____	2. No _____ _____
20	<b>A.</b> During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?	1. Yes _____ 2. No _____	
	IF YES TO 20A:		
	<b>B.</b> Did you produce phlegm with any of these chest illnesses?	1. Yes _____ 3. Does Not Apply _____	2. No _____ _____
	<b>C.</b> In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?	Number of illnesses _____ No. such illnesses _____	

21. Did you have any lung trouble before the age of 16? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
22. Have you ever had any of the following?
- 1A. Attacks of bronchitis? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- IF YES TO 1A:
- B. Was it confirmed by a doctor? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- C. At what age was your first attack? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
- 2A. Pneumonia (include bronchopneumonia)? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- IF YES TO 2A:
- B. Was it confirmed by a doctor? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- C. At what age did you first have it? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
- 3A. Hay Fever? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- B. Was it confirmed by a doctor? 3. Does Not Apply \_\_\_\_\_
- C. At what age did it start? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
23. A. Have you ever had chronic bronchitis? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- IF YES TO 23A:
- B. Do you still have it? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- C. Was it confirmed by a doctor? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- D. At what age did it start? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
24. A. Have you ever had emphysema? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- IF YES TO 24A:
- B. Do you still have it? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- C. Was it confirmed by a doctor? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_

- D. At what age did it start? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
25. A. Have you ever had asthma? 1. Yes \_\_\_\_ 2. No \_\_\_\_
- IF YES TO 25a:
- B. Do you still have it? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- C. Was it confirmed by a doctor? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- D. At what age did it start? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
- E. If you no longer have it, at what age did it stop? Age Stopped \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
26. Have you ever had:
- A. Any other chest illness? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
If yes, Please specify \_\_\_\_\_
- B. Any chest operations? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
If yes, Please specify \_\_\_\_\_
- C. Any chest injuries? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
If yes, Please specify \_\_\_\_\_
27. Has a doctor ever told you that you had heart trouble? 1. Yes \_\_\_\_ 2. No \_\_\_\_
- IF YES TO 27A:
- B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_\_
28. A. Has a doctor every told you that you had high blood pressure? 1. yes \_\_\_\_ 2. No \_\_\_\_
- IF YES TO 28A:
- B. Have you had any treatment for high blood pressure (hypertension) in the past ten years? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_\_
29. When did you last have your chest x-rayed? (Year) \_\_\_\_\_  
25 26 27 28
30. Where did you last have your chest x-rayed (if known)? \_\_\_\_\_
- What was the outcome? \_\_\_\_\_

## FAMILY HISTORY

31. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:

	FATHER			MOTHER		
	1. Yes	2. No	3. Don't Know	1. Yes	2. No	3. Don't Know
A. Chronic Bronchitis?	___	___	___	___	___	___
B. emphysema?	___	___	___	___	___	___
C. Asthma?	___	___	___	___	___	___
D. Lung cancer?	___	___	___	___	___	___

	FATHER			MOTHER		
	1. Yes	2. No	3. Don't Know	1. Yes	2. No	3. Don't Know
E. Other chest conditions?	___	___	___	___	___	___
F. Is parent currently alive?	___	___	___	___	___	___
G. Please Specify	___	Age if Living		___	Age if Living	
	___	Age at Death		___	Age at Death	
	___	Don't Know		___	Don't Know	
H. Please specify cause of death	_____			_____		

## COUGH

32. A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) (If no, skip to question 32C.) 1. Yes \_\_\_ 2. No. \_\_\_
- B. Do you usually cough as much as 4 to 6 times a day 4 or more days out of the week? 1. Yes \_\_\_ 2. No \_\_\_
- C. Do you usually cough at all on getting up or first thing in the morning? 1. Yes \_\_\_ 2. No \_\_\_
- D. Do you usually cough at all during the rest of the day or at night? 1. Yes \_\_\_ 2. No \_\_\_



IF YES TO ANY OF ABOVE (32A, B, C, or D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO NEXT PAGE.

E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_

F. For how many years have you had the cough? Number of Years \_\_\_\_  
Does Not Apply \_\_\_\_

33. A. Do you usually bring up phlegm from your chest? (Count phlegm with the first smoke or on first going out doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 33C.) 1. Yes \_\_\_\_ 2. No \_\_\_\_

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes \_\_\_\_ 2. No \_\_\_\_

C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes \_\_\_\_ 2. No \_\_\_\_

D. Do you usually bring up phlegm at all during the rest of the day or at night? 1. Yes \_\_\_\_ 2. No \_\_\_\_

IF YES TO ANY OF THE ABOVE (33A, B, C, OR D), ANSWER THE FOLLOWING:  
IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO 34A.

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_

F. For how many years have you had trouble with phlegm? Number of Years \_\_\_\_  
Does Not Apply \_\_\_\_

EPISODES OF COUGH AND PHLEGM

34. A. Have you had periods or episodes of (increased\*) cough and phlegm lasting for 3 weeks or more each year? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
\*(For persons who usually have cough and/or phlegm)

B. IF YES TO 34A:  
For how long have you had at least 1 such episode per year? Number of Years \_\_\_\_  
Does Not Apply \_\_\_\_

### WHEEZING

35. A. Does your chest ever sound wheezy or whistling
1. When you have a cold? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
  2. Occasionally apart from colds? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
  3. Most days or nights? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- B. IF YES TO 1, 2, or 3 in 35A:  
For how many years has this been present? Number of Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
36. A. Have you ever had an attack of wheezing that has made you feel short of breath? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- IF YES TO 36A:
- B. How old were you when you had your first such attack? Age in Years \_\_\_\_\_  
Does Not Apply \_\_\_\_\_
- C. Have you had 2 or more such episodes? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- D. Have you ever required medicine or treatment for the(se) attack(s)? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_

### BREATHLESSNESS

37. If disabled from walking by any condition other than heart or lung disease, please describe and proceed to question 39A.  
Nature of condition(s) \_\_\_\_\_
38. A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_
- IF YES TO 38A:
- B. Do you have to walk slower than people of your age on the level because of breathlessness? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- C. Do you ever have to stop for breath when walking at your own pace on the level? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_
- E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_

### TOBACCO SMOKING

39. A. Have you ever smoked cigarettes?  
(No means less than 20 packs of cigarettes  
or 12 oz. of tobacco in a lifetime or  
less than 1 cigarette a day for 1 year.)

1. Yes \_\_\_\_ 2. No \_\_\_\_

**IF YES TO 39A:**

- B. Do you now smoke cigarettes (as of  
one month ago)?
- C. How old were you when you first started  
regular cigarette smoking?
- D. If you have stopped smoking cigarettes  
completely, how old were you when you  
stopped?
- E. How many cigarettes do you smoke per  
day now?
- F. On the average of the entire time  
you smoked, how many cigarettes  
did you smoke per day?
- G. Do or did you inhale the cigarette  
smoke?

1. Yes \_\_\_\_ 2. No \_\_\_\_

Age in Years \_\_\_\_  
Does Not Apply \_\_\_\_

Age Stopped \_\_\_\_  
Check if still smoking \_\_\_\_  
Does Not Apply \_\_\_\_

Cigarettes per day \_\_\_\_  
Does Not Apply \_\_\_\_

Cigarettes per day \_\_\_\_  
Does Not Apply \_\_\_\_

1. Does Not Apply \_\_\_\_  
2. Not At All \_\_\_\_  
3. Slightly \_\_\_\_  
4. Moderately \_\_\_\_  
5. Deeply \_\_\_\_

40. A. Have you ever smoked a pipe regularly?  
(Yes means more than 12 oz. of tobacco  
in a lifetime.)

1. Yes \_\_\_\_ 2. No \_\_\_\_

**IF YES TO 40A:**

**FOR PERSONS WHO HAVE EVER SMOKED A PIPE**

- B. 1. How old were you when you started  
to smoke a pipe regularly?
2. If you have stopped smoking a pipe  
completely, how old were you when  
stopped?
- C. On the average over the entire time you  
smoked a pipe, how much pipe tobacco did  
you smoke per week?

Age \_\_\_\_

Age Stopped \_\_\_\_  
Check if still  
smoking pipe \_\_\_\_  
Does Not Apply \_\_\_\_

oz. per week \_\_\_\_  
(a standard pouch  
of tobacco contains  
1-1/2 oz.)  
Does Not Apply \_\_\_\_

D. How much pipe tobacco are you smoking now? Oz. per week \_\_\_\_\_  
Not currently \_\_\_\_\_  
smoking a pipe \_\_\_\_\_

E. Do you or did you inhale the pipe smoke? 1. Never smoked \_\_\_\_\_  
2. Not at all \_\_\_\_\_  
3. Slightly \_\_\_\_\_  
4. Moderately \_\_\_\_\_  
5. Deeply \_\_\_\_\_

41. A. Have you ever smoked cigars regularly? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
(Yes means more than 1 cigar a week for  
a year)

**IF YES TO 41A:**  
**FOR PERSONS WHO HAVE EVER SMOKED CIGARS**

B. 1. How old were you when you started Age \_\_\_\_\_  
smoking cigars regularly?

2. If you have stopped smoking cigars Age Stopped \_\_\_\_\_  
completely, how old were you when Check if still \_\_\_\_\_  
stopped? smoking cigars \_\_\_\_\_  
Does Not Apply \_\_\_\_\_

C. On the average over the entire time you Cigars per week \_\_\_\_\_  
smoked cigars, how many cigars did you Does Not Apply \_\_\_\_\_  
smoke per week?

D. How many cigars are you smoking per week Cigars week \_\_\_\_\_  
now? Check if not \_\_\_\_\_  
smoking cigars \_\_\_\_\_  
currently \_\_\_\_\_

E. Do you or did you inhale the cigar smoke? 1. Never smoked \_\_\_\_\_  
2. Not at all \_\_\_\_\_  
3. Slightly \_\_\_\_\_  
4. Moderately \_\_\_\_\_  
5. Deeply \_\_\_\_\_

Date \_\_\_\_\_

Signature \_\_\_\_\_

## Part 2

## PERIODIC MEDICAL QUESTIONNAIRE

1. Name \_\_\_\_\_
2. Social Security # \_\_\_\_\_  
1 2 3 4 5 6 7 8 9
3. CLOCK NUMBER \_\_\_\_\_  
10 11 12 13 14 15
4. PRESENT OCCUPATION \_\_\_\_\_
5. PLANT \_\_\_\_\_
6. ADDRESS \_\_\_\_\_
7. \_\_\_\_\_ (Zip Code)
8. TELEPHONE NUMBER \_\_\_\_\_
9. INTERVIEWER \_\_\_\_\_
10. Date \_\_\_\_\_  
16 17 18 19 20 21
11. What is your marital status? 1. Single \_\_\_\_\_ 4. Separated/  
2. Married \_\_\_\_\_ Divorced \_\_\_\_\_  
3. Widowed \_\_\_\_\_

### OCCUPATIONAL HISTORY

- 12 A. In the past year, did you  
worked full time (30 hours  
per week or more) for 6 months or  
more? 1. Yes \_\_\_\_ 2. No \_\_\_\_
- IF YES TO 12A:
12. B. In the past year, did you work  
in any dusty job? 1. Yes \_\_\_\_ 2. No \_\_\_\_  
3. Does Not Apply \_\_\_\_
12. C. Was dust exposure: 1. Mild \_\_\_\_ 2. Moderate \_\_\_\_ 3. Severe \_\_\_\_
12. D. In the past year, were you  
exposed to gas or chemical  
fumes in your work? 1. Yes \_\_\_\_ 2. No \_\_\_\_

12. E. Was exposure: 1. Mild \_\_\_\_\_ 2. Moderate \_\_\_\_\_ 3. Severe \_\_\_\_\_

12. F. In the past year, what was your: 1. Job/occupation \_\_\_\_\_  
2. Position/job title? \_\_\_\_\_

13. RECENT MEDICAL HISTORY

13. A. Do you consider yourself to be in good health? Yes \_\_\_\_\_ No \_\_\_\_\_

If NO, state reason \_\_\_\_\_

13. B. In the past year, have you developed: Yes \_\_\_\_\_ No \_\_\_\_\_

Emphysema?	_____	_____
Rheumatic fever?	_____	_____
Kidney disease?	_____	_____
Bladder disease?	_____	_____
Diabetes?	_____	_____
Jaundice?	_____	_____
Cancer?	_____	_____

14. CHEST COLDS AND CHEST ILLNESSES

14. A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time) 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Don't get colds \_\_\_\_\_

15. A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does not Apply \_\_\_\_\_

15. B. IF YES TO 15A:  
Did you produce phlegm with any of these chest illnesses? 1. Yes \_\_\_\_\_ 2. No \_\_\_\_\_  
3. Does Not Apply \_\_\_\_\_

15. C. In the past years, how many such illnesses with (increased) phlegm did you have which lasted a week or more? Number of illnesses \_\_\_\_\_  
No. such illnesses \_\_\_\_\_

**16. RESPIRATORY SYSTEM**

**In the past year, have you had:**

	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Asthma	_____	
Bronchitis	_____	
Hay Fever	_____	
Other Allergies	_____	
Pneumonia	_____	
Tuberculosis	_____	
Chest Surgery	_____	
Other Lung Problems	_____	
Heart Disease	_____	

**Do you have:**

	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Frequent colds	_____	
Chronic cough	_____	
Shortness of breath when walking or climbing one flight of stairs	_____	
Do you:		
Wheeze	_____	
Cough up phlegm	_____	
Smoke cigarettes	_____	Packs per day ____ How many years ____

Date \_\_\_\_\_

Signature \_\_\_\_\_

## ASBESTOS-CONTAINING MATERIAL REINSPECTION FORM

Building: _____	GSA Bldg. No.: _____
Address: _____	
Area: _____	Date of Reinspection: _____
Homogeneous Area No.: _____	Functional Space No.: _____
Date of Original Assessment: _____	Date of Last Reinspection: _____
Category of Asbestos-Containing Material: _____	_____ Surfacing _____ Thermal System Insulation
	_____ Miscellaneous
Description of ACM: _____	
Amount of Material: _____	
Any Change in Material Condition?: _____	Yes _____ No _____ Describe: _____
Asbestos Known? _____ Type: _____ Percentage: _____ Asbestos Assumed? _____	
Any ACM Debris on Floors/ Surfaces/Etc.?: _____	Yes _____ No _____
Since the Last Assessment/Reassessment, Has There Been Any Change In:	
Physical Damage: _____	Yes _____ No _____ Describe: _____
Water Damage: _____	Yes _____ No _____ Describe: _____
Exposed Surface Area: _____	Yes _____ No _____ Describe: _____
Accessibility to ACM: _____	Yes _____ No _____ Describe: _____
Activity in Area: _____	Yes _____ No _____ Describe: _____
Building/Area Use: _____	Yes _____ No _____ Describe: _____
Friability: _____	Yes _____ No _____ Describe: _____
Vibration in Area: _____	Yes _____ No _____ Describe: _____
Approximate Amount of ACM Showing A Change In Condition (i.e., area or percentage): _____	
Reinspection Conducted By: _____ Date: _____	
Inspector's Company/Organization _____	Phone: _____
Next Scheduled Reinspection: _____	
Signed: _____	Date: _____
(Facility Asbestos Control Manager)	



## Work Control Application for Performing Maintenance/Renovation Work

Notes to applicant: (1) Submit this application as soon as work which may involve asbestos is initiated, and attach supporting documents, such as drawings and reimbursable work authorization. Include information known at the time of application, and discuss revisions with the Facility Asbestos Control Manager as the project develops.

(2) Review of the application is based on the asbestos known to GSA; the applicant retains the responsibility for controlling asbestos the applicant encounters and immediately reporting to GSA any unexpected materials suspected of containing asbestos, or unexpected conditions of known asbestos.

Building: \_\_\_\_\_ GSA Building No.: \_\_\_\_\_

Address: \_\_\_\_\_

Area of Work: \_\_\_\_\_

Dates of Work: Start \_\_\_\_\_ Completion \_\_\_\_\_

Description of Work Involved: \_\_\_\_\_

Asbestos Control Method(s):	Proposed by Applicant	Accepted by Facil. Asb. Control Mgr.
-----------------------------	-----------------------	--------------------------------------

Removal	_____	_____
Encapsulation	_____	_____
Enclosure	_____	_____
Repair	_____	_____
O&M	_____	_____
Other	_____	_____

Type (Category) And Approximate  
Amount of Asbestos-Containing Materials:

Type (fireproofing, pipe lagging, etc.)	_____	_____
--	-------	-------

Protective equipment (describe):

Personal:	_____	_____
-----------	-------	-------

Work area:	_____	_____
------------	-------	-------

Contractor/Agency Name: \_\_\_\_\_ Contact: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Review by Facility Asbestos Control Manager:

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_ Project Number: \_\_\_\_\_

Denied by: \_\_\_\_\_ Date: \_\_\_\_\_ Reason for Denial: \_\_\_\_\_

# OPERATIONS & MAINTENANCE PROGRAM ACTIVITY

Building \_\_\_\_\_ GSA Bldg. No. \_\_\_\_\_  
Address \_\_\_\_\_  
Area \_\_\_\_\_ Dates of Project: \_\_\_\_\_  
\_\_\_\_\_ GSA Project/Contract No.: \_\_\_\_\_

Purpose of O&M Activity:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Minor Repair  
Small Scale Removal  
Small Scale Encapsulation  
Abate Pre-Existing ACM Debris  
Fiber Release Episode  
Periodic Cleaning

Type of Material:

\_\_\_\_\_ Surfacing

\_\_\_\_\_ Thermal System Insulation

\_\_\_\_\_ Miscellaneous

Approximate Amount of Material Involved:

\_\_\_\_\_ SF

\_\_\_\_\_ LF

Cause of O&M Activity:

\_\_\_\_\_ Deterioration

\_\_\_\_\_ Vandalism

\_\_\_\_\_ Delamination

\_\_\_\_\_ Maintenance Activity

\_\_\_\_\_ Water Damage

\_\_\_\_\_ Other (Specify)

\_\_\_\_\_ Physical Damage

\_\_\_\_\_

Precautions Taken:

\_\_\_\_\_ Warning Signs Posted

\_\_\_\_\_ Air Handling System Shut Down; \_\_\_\_\_ Modified

\_\_\_\_\_ Access to Area Restricted

Work Practices Used:

\_\_\_\_\_ Wet Wiping

\_\_\_\_\_ Glovebags

\_\_\_\_\_ HEPA-Vacuum

\_\_\_\_\_ Other (Specify)

\_\_\_\_\_ Enclosures

\_\_\_\_\_

\_\_\_\_\_ Steam Cleaning

\_\_\_\_\_

Protective Equipment Used:

\_\_\_\_\_ Respirators; Type \_\_\_\_\_

\_\_\_\_\_ Protective Clothing

\_\_\_\_\_ Other (Specify) \_\_\_\_\_

**O&M PROGRAM ACTIVITY**  
**PAGE 2 of 2**

Was Air Monitoring Conducted? \_\_\_\_\_ Yes \_\_\_\_\_ No  
(Attach air sampling log form)

Were Affected Tenant Agencies Notified? \_\_\_\_\_ Yes \_\_\_\_\_ No  
(Attach Occupant Notification Form)

Brief Description of Action: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Start Date \_\_\_\_\_ Completion Date \_\_\_\_\_

Work Conducted: \_\_\_\_\_ In-House \_\_\_\_\_ Outside Contractor

Name of Contractor: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Contact/Phone: \_\_\_\_\_

Contractor Personnel Involved: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

GSA Project Supervisor: \_\_\_\_\_

Phone: \_\_\_\_\_

GSA Personnel Involved: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Work Completed According to GSA Requirements/Standards:

Signed: \_\_\_\_\_  
GSA Project Supervisor

Date: \_\_\_\_\_

Signed: \_\_\_\_\_  
Facilities Asbestos Control Manager

Date: \_\_\_\_\_

## RECORDS REQUEST FORM

Building: \_\_\_\_\_ GSA Building No.: \_\_\_\_\_

Address: \_\_\_\_\_

Requesting Agency: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Date Requested: \_\_\_\_\_

Room/Building: \_\_\_\_\_ Phone: \_\_\_\_\_

### Records Requested:

Area or Subject: \_\_\_\_\_

Contract Number: \_\_\_\_\_

Description of Records: \_\_\_\_\_

Reason for Request: \_\_\_\_\_

Request Received By: \_\_\_\_\_ Date: \_\_\_\_\_

Request Granted By: \_\_\_\_\_ Date: \_\_\_\_\_

Request Denied By: \_\_\_\_\_ Date: \_\_\_\_\_

Reason: \_\_\_\_\_

Facility Asbestos Control Manager Approval: \_\_\_\_\_

(Signature)

Date: \_\_\_\_\_

Date Records Sent: \_\_\_\_\_

# DATA FORM      AIR SAMPLES

Building: \_\_\_\_\_

GSA Building No.: \_\_\_\_\_

Address: \_\_\_\_\_

Sample Number	Date	Location	Type of Sample			Activity Being Sampled	Name, Social Security Number and Organization of Individual Monitored	Sampling Information							
			Personal		Area I(nside) O(utside) C(learance)			Start Time	Stop Time	Mins.	Flow Rate 1/min.	Vol.	Method of Analysis	Fiber Concent.	
			8-Hr. TWA	Excur.											

Additional Comments: \_\_\_\_\_

Sampling Technician: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Technician's Firm: \_\_\_\_\_

## Fiber Release Episode Report

Building: _____	GSA Building No.: _____
Address: _____	
Area: _____	Date: _____
Episode Reported By: _____	Date: _____
(Name, Title)	Phone: _____
Type of Material: _____ Surfacing _____ Miscellaneous	
_____ Thermal System Insulation	
Approximate Amount of Material Released _____	
Asbestos Type and Content (If Known) _____	
Cause of Release: _____	Deterioration _____ Physical Damage _____
_____	Delamination _____ Vandalism _____
_____	Water Damage _____ Maintenance Activity _____
Was area sealed off from nonessential personnel? _____ Yes _____ No How: _____	
Was air handling system shut down/modified? _____ Shut Down _____ Modified _____ No	
Description Of Clean-Up Procedures: _____	
_____	
_____	
Clean-Up Conducted: _____ Outside Contractor _____ In-House	
Name of Contractor: _____	Response Team Leader: _____
Address: _____	
Equipment Used: _____ HEPA-Vacuums _____ Respirators	
_____ Wet-Wiping _____ Protective Clothing	
_____ Steam Cleaning _____ Other (Specify) _____	
Was Regional Office contacted regarding release? _____ Yes _____ No	
Person Contacted: _____	Dept.: _____
Title: _____	Phone: _____
Was follow-up letter/information sent? _____ Yes _____ No	Date: _____
Signed: _____	Date: _____
(Facility Asbestos Control Manager)	

# Waste Tracking Form

## Part 1 - To be completed by workers:

Maintenance Work Authorization No. \_\_\_\_\_

Work Location: Building: \_\_\_\_\_

Room # or Area: \_\_\_\_\_

Type of ACM Removed: \_\_\_\_\_

Quantity of Waste generated: \_\_\_\_\_ Bags

Other containers: \_\_\_\_\_

Waste transported to: \_\_\_\_\_

Transported by: \_\_\_\_\_

Tracking Form given to: \_\_\_\_\_

## Part 2 - To be completed by Asbestos Program Manager

Waste Properly Packaged & Labeled: Yes \_\_\_\_\_ No \_\_\_\_\_

EXCEPTIONS: \_\_\_\_\_

Waste Storage Location: \_\_\_\_\_

Waste Disposal Location: \_\_\_\_\_

Waste Shipment Records Received: \_\_\_\_\_

Date: \_\_\_\_\_

SIGNED: \_\_\_\_\_

ASBESTOS PROGRAM MANAGER

DATE: \_\_\_\_\_

## WASTE DISPOSAL RECORD FORM

Building: \_\_\_\_\_ GSA Bldg. No.: \_\_\_\_\_

Address: \_\_\_\_\_ GSA Project No.: \_\_\_\_\_

Area of Work: \_\_\_\_\_

### WASTE INFORMATION

#### ACM Removal

- \_\_\_\_\_ Wet Removal  
\_\_\_\_\_ Dry Removal (EPA Approval Forms Attached)

#### Containerization (check all that apply)

- \_\_\_\_\_ Labelled 6 mil bags  
\_\_\_\_\_ Metal drums (labeled) \_\_\_\_\_ Fiberboard drums (labeled)  
\_\_\_\_\_ Other (specify) \_\_\_\_\_

### DISPOSAL NOTIFICATION (Check All That Apply and Provide Copies)

- |       |                           |             |
|-------|---------------------------|-------------|
| _____ | Local NESHAP notification | Date: _____ |
| _____ | State NESHAP notification | Date: _____ |
| _____ | Federal EPA notification  | Date: _____ |
| _____ | Landfill Operator         | Date: _____ |

### CHAIN OF CUSTODY (Attach Landfill Receipts/Forms)

- |                         |            |                     |
|-------------------------|------------|---------------------|
| _____ Contractor        | Date _____ | Manifest No.: _____ |
| _____ Waste hauler      | Date _____ | Manifest No.: _____ |
| _____ Landfill operator | Date _____ | Manifest No.: _____ |

### DISPOSAL SITE

Landfill name: \_\_\_\_\_  
Mailing address: \_\_\_\_\_  
Phone number: \_\_\_\_\_  
Amount of material: \_\_\_\_\_

Form Completed By \_\_\_\_\_ Date: \_\_\_\_\_

GSA Contract # \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Facility Asbestos Control Manager)



## Record of Initial/Periodic Special Cleaning

Building \_\_\_\_\_

GSA Building No.: \_\_\_\_\_

Address \_\_\_\_\_

Date: \_\_\_\_\_

Area Cleaned \_\_\_\_\_

Initial Cleaning \_\_\_\_\_

Periodic Recleaning \_\_\_\_\_

Items Cleaned: \_\_\_\_\_

Carpet

\_\_\_\_\_

Drapes/Curtains

\_\_\_\_\_

Furniture

\_\_\_\_\_

Fixtures

\_\_\_\_\_

Flooring

\_\_\_\_\_

Other

Equipment Used: \_\_\_\_\_

HEPA-Vacuums

\_\_\_\_\_

Wet-Wiping

\_\_\_\_\_

Steam Cleaning

Any Visible Debris in Area \_\_\_\_\_ Yes \_\_\_\_\_ No

Any Change in ACM Condition Since Previous Cleaning \_\_\_ Yes \_\_\_ No \_\_\_ N/A \_\_\_\_\_

Extent of Change \_\_\_\_\_

GSA Activity Supervisor

\_\_\_\_\_

GSA Personnel Involved

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of Contractor:

\_\_\_\_\_

Address: \_\_\_\_\_

Contact/Phone: \_\_\_\_\_

Contractor Personnel Involved: \_\_\_\_\_

Comments \_\_\_\_\_

\_\_\_\_\_

Signed \_\_\_\_\_

GSA Activity Supervisor

Date: \_\_\_\_\_

Next Scheduled Cleaning \_\_\_\_\_

Signed \_\_\_\_\_

Facility Asbestos Control Manager

Date: \_\_\_\_\_

**CONTRACTOR'S ASBESTOS OPERATIONS AND MAINTENANCE POLICY AND  
STANDARD OPERATING PRACTICES ACKNOWLEDGEMENT**

Facility: \_\_\_\_\_

Contractor: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Type(s) of Work Performed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The above named Contractor hereby certifies that they:

1. Have been informed of the presence, type, and locations of asbestos-containing materials at this facility.
2. Have a copy of the Policy and Standard Operating Practices for this facility.
3. Have reviewed and understand the Policy and Standard Operating Practices.
4. Will comply with the Policy and Standard Operating Practices and the procedures in the Program when working around and working with asbestos-containing materials present at this facility.
5. Will train the Contractor's employees in accordance to comply with the Policy and Standard Operating Practices training requirements.

Signed: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

# CLEARANCE INSPECTION CHECKLIST

Building: \_\_\_\_\_ Project No.: \_\_\_\_\_

Address: \_\_\_\_\_

Location: \_\_\_\_\_ GSA Bldg. No.: \_\_\_\_\_

Date and Time Inspection Started: \_\_\_\_\_ Completed \_\_\_\_\_

Asbestos-Containing Material Being Abated: \_\_\_\_\_ Surfacing

\_\_\_\_\_ Thermal System Insulation

\_\_\_\_\_ Miscellaneous

Approximate Amount of Material Abated: \_\_\_\_\_ Sq. Ft. \_\_\_\_\_ LF

Inspection for Residual Dust: \_\_\_\_\_ None Found

\_\_\_\_\_ Residual dust found on:

\_\_\_\_\_ floor \_\_\_\_\_ horizontal surfaces

\_\_\_\_\_ pipes \_\_\_\_\_ HVAC equipment

\_\_\_\_\_ lights \_\_\_\_\_ other (specify)

Inspection for Gross Contamination: \_\_\_\_\_ None Found

\_\_\_\_\_ Gross contamination found on:

\_\_\_\_\_ deck \_\_\_\_\_ structural members

\_\_\_\_\_ pipes \_\_\_\_\_ other (specify)

\_\_\_\_\_ floors \_\_\_\_\_

Results of Clearance Inspection: \_\_\_\_\_ Pass \_\_\_\_\_ Fail

Comments: \_\_\_\_\_

Clearance of Air Sampling Conducted: \_\_\_\_\_ Yes \_\_\_\_\_ No Date: \_\_\_\_\_

Results of Clearance Air Sampling: \_\_\_\_\_ Area Passes: \_\_\_\_\_ Yes \_\_\_\_\_ No  
Copies of data sheets attached.

Area Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector's Company/Organization: \_\_\_\_\_ Phone: \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

(Facility Asbestos Control Manager)

# NOTIFICATION OF DEMOLITION AND RENOVATION

Operator Project #	Postmark	Date Received	Notification #
--------------------	----------	---------------	----------------

**I. TYPE OF NOTIFICATION** ( O=Original R=Received C=Cancelled):

**II. FACILITY INFORMATION** (Identify owner, removal contractor, and other operator)

**OWNER NAME:**

**Address:**

City:	State:	Zip:
Contact:	Tel:	

**REMOVAL CONTRACTOR:**

**Address:**

City:	State:	Zip:
Contact:	Tel:	

**OTHER OPERATOR:**

**Address:**

City:	State:	Zip:
Contact:	Tel:	

**III. TYPE OF OPERATOR** (D=Demo O=Ordered Demo R-Renovation E=Emer. Renovation)

**IV. IS ASBESTOS PRESENT?** (Yes/No)

**V. FACILITY DESCRIPTION** (Include building name, number and floor or room number)

**Bldg Name:**

**Address:**

City:	State:	County:
-------	--------	---------

**Site Location:**

Building Size:	# of Floors:	Age in Years:
----------------	--------------	---------------

**Present Use:** \_\_\_\_\_ **Prior Use:** \_\_\_\_\_

**VI. PROCEDURE, INCLUDING ANALYTICAL METHOD IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:**

VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING:	RACM To Be Removed	Nonfriable Asbestos Material Not To Be Removed		Indicate Unit of Measurement Below	
1. Regulated ACM to be removed 2. Category I ACM Not Removed 3. Category II ACM Not Removed		Cat I	Cat II	UNIT	
Pipes				Ln Ft:	Ln m:
Surface Area				Sq Ft:	Sq m:
Vol RACM Off Facility Component				Cu Ft:	Cu m:

**VIII. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY)** Start: \_\_\_\_\_ Complete: \_\_\_\_\_

**IX. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY)** Start: \_\_\_\_\_ Complete: \_\_\_\_\_

Continued on page two

NOTIFICATION OF DEMOLITION AND RENOVATION (continued)

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED:

XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE:

XII. WASTE TRANSPORTER #1

Name:

Address:

City:

State:

Zip:

Contact Person:

Telephone:

WASTE TRANSPORTER #2

Name:

Address:

City:

State:

Zip:

Contact Person:

Telephone:

XIII. WASTE DISPOSAL SITE:

Name:

Location:

City:

State:

Zip:

Telephone:

XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW:

Name:

Title

Authority:

Date of order (MM/DD/YY)

Date ordered to begin (MM/DD/YY)

XV. FOR EMERGENCY RENOVATIONS

Date and hour of emergency (MM/DD/YY):

Description of the Sudden, Unexpected Event:

Explanation of how the event caused unsafe conditions or would cause equipment damage  
(or an unreasonable financial burden:)

XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLLED, PULVERIZED, OR REDUCED TO POWDER.

XVI. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THE THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required 1 year after promulgation)

(Signature of Owner/Operator) (date)

XVII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

(Signature of Owner/Operator) (date)

Notification of Demolition and Renovation

Generator	1. Work site name and mailing address		Owner's name	Owner's telephone no.
	2. Operator's name and address			Operator's telephone no.
	3. Waste disposal site (WDS) name, mailing address, and physical site location			WDS phone no.
	4. Name, and address of responsible agency			
	5. Description of materials		6. Containers No.      Type	7. Total quantity m <sup>3</sup> (yd <sup>3</sup> )
	8. Special handling instructions and additional information			
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.			
Printed/typed name & title		Signature	Month Day Year	
Transporter	10. Transporter 1 (Acknowledgment of receipt of materials)			
	Printed/typed name & title		Signature	Month Day Year
	Address and telephone no.			
	11. Transporter 2 (Acknowledgment of receipt of materials)			
	Printed/typed name & title		Signature	Month Day Year
	Address and telephone no.			
Disposal Site	12. Discrepancy indication space			
	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.			
	Printed/typed name & title		Signature	Month Day Year

Continued on next page (page 1 of 3)

Waste Shipment Record

## INSTRUCTIONS

### Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
  - Friable asbestos material
  - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
  - DM — Metal drums, barrels
  - DP — Plastic drums, barrels
  - BA — 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator must retain a copy of this form.

Continued on next page (2 of 3)

Waste Shipment Record

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledge receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

(Page 3 of 3)

Waste Shipment Record





## **Section 15   Abbreviations and Acronyms**

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AA	-	Assistant Administrator
ACBM	-	Asbestos-Containing Building Materials
AHERA	-	Asbestos Hazard Emergency Response Act
APC	-	Asbestos Program Coordinator
APM	-	Asbestos Program Manager
ASHARA	-	Asbestos School Hazard Abatement Reauthorization Act
CEU	-	Continuing Education Unit
EPA	-	Environmental Protection Agency
EPAL	-	EPA Leased Facility
EPAO	-	EPA Owned and Managed Facility
GSA	-	General Services Administration
GSAL	-	EPA Facility Leased by GSA
GSAO	-	EPA Facility Owned and Managed by GSA
IAG	-	Inter-Agency Agreement
NIBS	-	National Institute of Building Sciences
O&M	-	Operations and Maintenance
OARM	-	Office of Administration and Resources Management
OSHA	-	Occupational Safety and Health Administration
PDSHEMO	-	Program Designated Safety, Health, and Environmental Management Official
RA	-	Regional Administrator
RDSHEMO	-	Regional Designated Safety, Health, and Environmental Management Official
SEE Program	-	Senior Environmental Employment Program
SHEMD	-	Safety, Health, and Environmental Management Division
SHEMP	-	Safety, Health, and Environmental Management Program
SM	-	Standard Method
SOP	-	Standard Operating Practice
SS/SD	-	Small-Scale, Short Duration
TQM	-	Total Quality Management
TSI	-	Thermal System Insulation
WCL	-	Workplace Control Level

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## **DISCLAIMER**

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